ENGINEERING NEWS-RECORD

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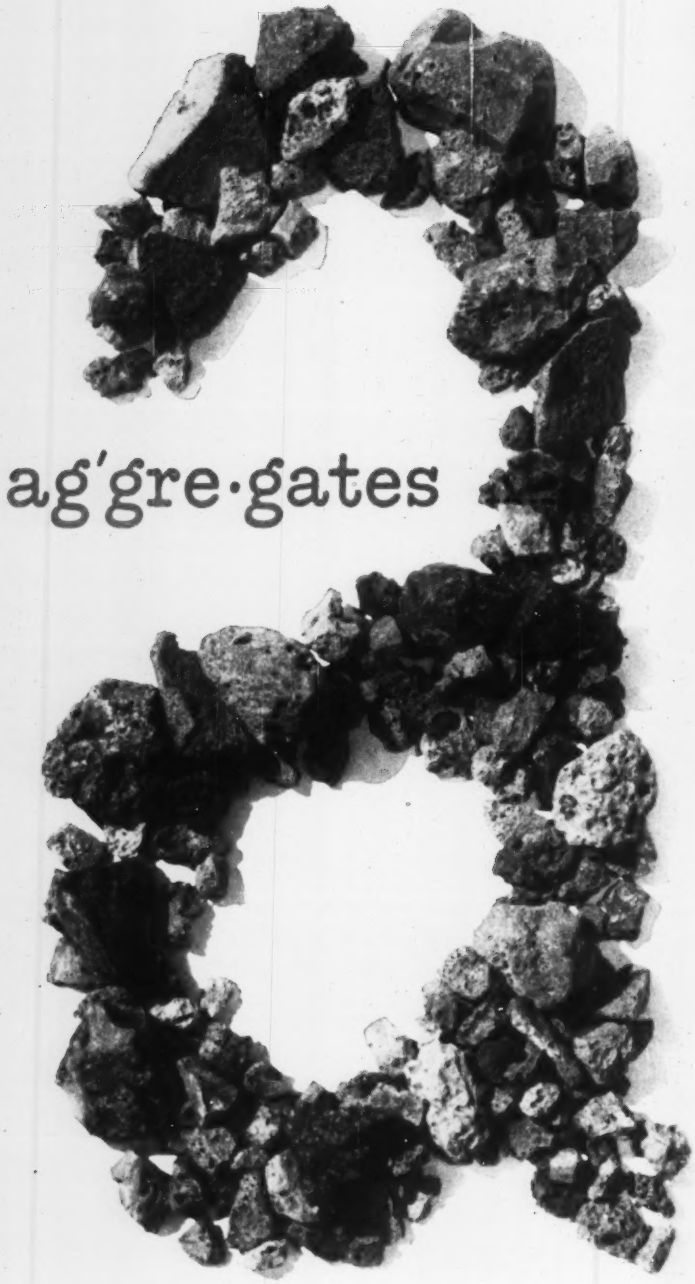
Mark Hollis: "A billion a year to c trol pollution" p.48

A McGRAW-HILL PUBLICATI



Any hard inert material for mixing in graduated fragments with a cementing material to form concrete, or the like.

Webster

Aggregates: stone . . . gravel . . . sand . . . slag. The stuff America builds with. The bedrock of our roads, runways, railroads . . . the guts of the buildings, bridges, dams, docks and sidewalks that make up the face of America.

Today, you have a one-word definition for aggregates . . . VULCAN. Vulcan Materials Company is the nation's No. 1 supplier of aggregates to America's giant construction industry. But . . . Vulcan is *big with a difference.* It gives you *local* service by *local* people familiar with your specific requirements.

For aggregates of uniform high quality . . . for on-schedule delivery from 115 production facilities that span the continent from the Great Lakes to the Gulf . . . the Atlantic seaboard to the Rockies . . . call the Vulcan office nearest you. It's listed in your telephone directory.

Vulcan Materials Company also produces Concrete Products, Surfacing Materials, Construction Materials, Chemicals and Metallics.

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- Stockbridge Stone Division
- Vulcan Detinning Division
- Frontier Chemical Company Division
- Teckote Corporation

Installed in 1909 — —
Springfield's steel main is still on the job

Things have changed in the waterworks field since '09. But, as the photo shows, even then they were using large-diameter steel pipe in Springfield, Massachusetts.

This 42-in. lockbar steel main carries water some 22,000 ft from Provin Mountain Reservoir in West Springfield across the Connecticut River and into the City. Now in its fiftieth year, it is expected to give many more years of service. And in a half-century it has required very little maintenance.

Another major line, of 54-in. and 48-in. welded steel, with riveted joints, was laid between the reservoir and the city in 1928-1929. It's described as "in excellent shape" today.

The most recent tests indicated the H & W flow coefficients to be 111 for the 1909 line, 140 for the 1928-1929 line, and 143 for another steel line laid in 1949. According to the Municipal Water Works: "These tests showed that steel lines with proper coatings will give very long life as far as carrying capacity is concerned."

Scores of old steel mains are still in service throughout the nation. By present-day standards they were crudely constructed, inadequately protected. If they could give fifty or more years of steady, reliable service, think what today's steel pipe can do—lined and coated with modern coal-tar enamel.

Make your next main a *steel* main. The Bethlehem sales office nearest you will gladly give you full details on the advantages of steel pipe.

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PIPE PILES
every type
every size

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When the job calls for pipe piles, get the advantages of a *complete* piling service by calling Foster. L. B. Foster Company will supply the exact diameter you need . . . in light gauge spiral-weld pipe piles or electricweld, lap-weld or seamless pipe for piling, in a complete range of wall thicknesses thru ½" and heavier.

And you'll get your piling at lowest job cost . . . cut to exact length. Foster's nationwide stocks assure immediate deliveries of any quantities . . . eliminate delays or costly stockpiling.

Rental Steel-Sheet Piling • Lightweight Piling
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See Sweet's Industrial Construction File, or send for Catalog EP-9

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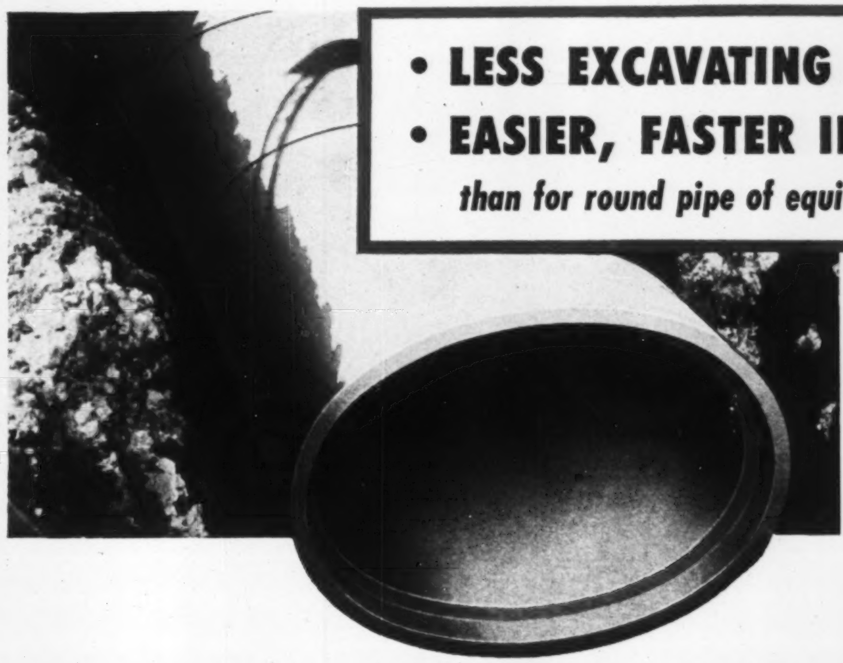
- **LESS EXCAVATING COST**
- **EASIER, FASTER INSTALLATION**

than for round pipe of equivalent diameter



UNITED STATES *Elliptical*
CONCRETE PIPE

PROJECT: Storm sewer, for City of Shaker Heights, Ohio

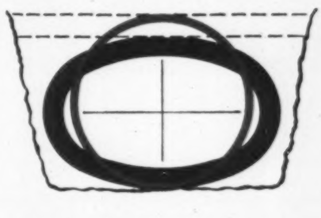
ENGINEERS: Gilbert Associates, Inc., Reading, Pa.

CONTRACTOR: Murray Hill Construction Company, South Euclid, Ohio

PIPE: United States Elliptical Concrete Pipe, 38" x 60" (round equivalent of 48")

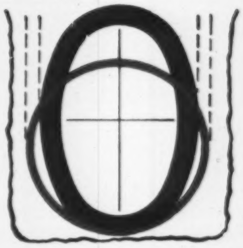
WRITE FOR BROCHURE

containing technical information on United States Elliptical Concrete Pipe, sizes in round equivalents, and flow data charts.



FOR SHALLOW TRENCHES

When installed on the horizontal axis, the lower crown of United States Elliptical Pipe permits a shallower trench, simplifying installations where head room is lacking.



FOR NARROW TRENCHES

United States Elliptical Pipe is also manufactured for use on the vertical axis, providing for installations where utility conduits or other obstructions restrict trench width.

6082

UNITED STATES CONCRETE PIPE CO.
UNIVERSAL SEWER PIPE CORPORATION

PRODUCTS

Concrete Pipe, plain or plate-lined, round or elliptical; Pre-cast Concrete Manhole Sections; Vitrified Clay Pipe and Fittings; Clay Liner Plates; Ship Lap Wall Coping and other clay products.

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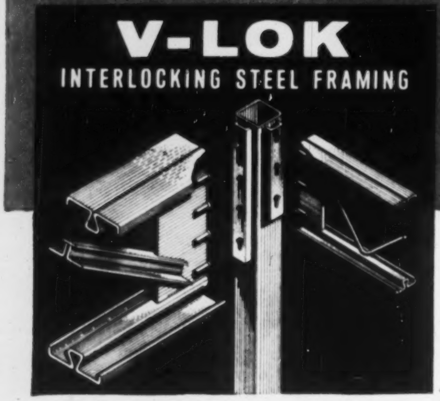


Question: What do these companies have in common?

Answer: They built with Macomber V-LOK Steel Framing — saved erection time and costs — assured earlier occupancy and faster investment returns.

Macomber V-LOK is rugged, strong, versatile. It can solve your steel framing problems, too. Write for additional information.

Do you have the Warehouse Design Manual?

Designing
V-LOK

MACOMBER

CANTON 1, OHIO

NEW 60-TON LORAIN MC-760 MOTO-CRANE with 8 x 4 carrier "Power-Set" Outriggers

BIG PERFORMANCE ON THE JOB

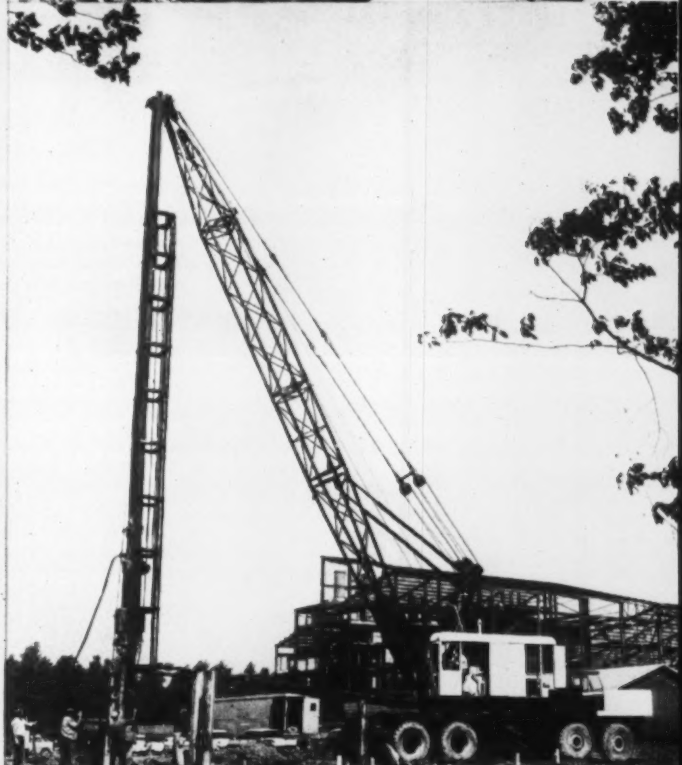
- **Lorain Power-Set Outriggers** set up in less than 60 seconds, automatically adjust to uneven terrain, permit 40-second move-ups.
- **"Shear-Ball" turntable connection** eliminates all maintenance and adjustment. Only routine lubrication needed. Warranted for 10 years.
- **A 40′ basic boom** extends to 170′ with center sections. Square-tubular-chord design, new alloy steel . . . lighter, longer, stronger.
- **Front bogie** is Lorain-designed with solid equalizer beams to provide big "on-rubber" capacities.
- **Folding gantry, power operated,** lowers to carry boom in travel position without exceeding overall cab height.
- **Boom is raised and lowered** by positive and independent clutch control for extreme precision.
- **With a 230″ wheelbase,** an overall width of 135″, the MC-760 has a heavy, welded box-section chassis frame . . . no weave, no deflection under the heaviest loads.

FAST TRAVEL BETWEEN JOBS

- **Forward speeds** from 1.2 to over 37 mph. Air brakes on all 8 wheels.
- **17,000-pound rear counterweight** is easily removed with timesaving, hydraulic jacks to reduce road weight.
- **Removable outrigger boxes** and beams have fast-action, pin connections and hydraulic disconnects.
- **Hydraulic assist,** patented, centralized steering provides effortless driving, best front wheel tracking.
- **Low overall height.** A 14′ span between second and third axles meets most stringent bridge formulae.
- **Tandem drive rear axles.** Final reduction through planetary wheel hubs to relieve power train of strains.

For further details see your Lorain distributor.

THE THEW SHOVEL COMPANY, LORAIN, OHIO



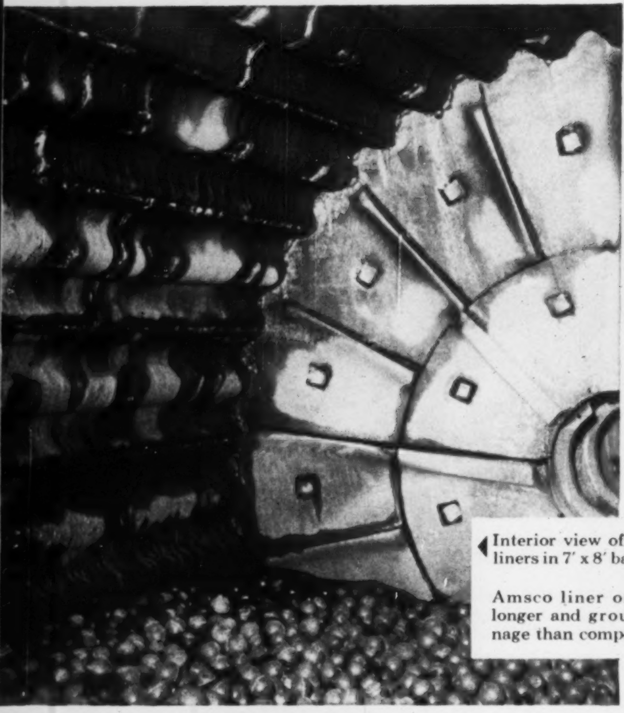
LORAIN®
ON THE MOVE

PLANTS in Lorain, Elyria and Bucyrus, Ohio

PRODUCTS—Power shovels, cranes, draglines, clamshells, and hoes on crawler mountings from ⅜- to 2½-yard capacity · Cranes from 7 to 80 tons . . . on crawlers, and as rubber-tire Moto-Cranes, and Self-Propelled Cranes · Rubber tire front-end Moto-Loaders in 1¾- and 2-yard models.

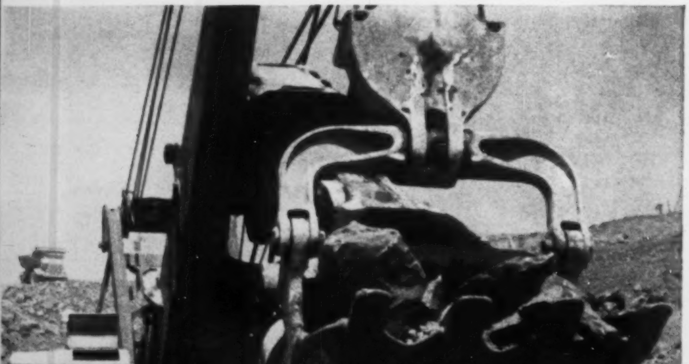
OUTLETS—Lorain products sold and serviced by 249 distributor outlets throughout the world.

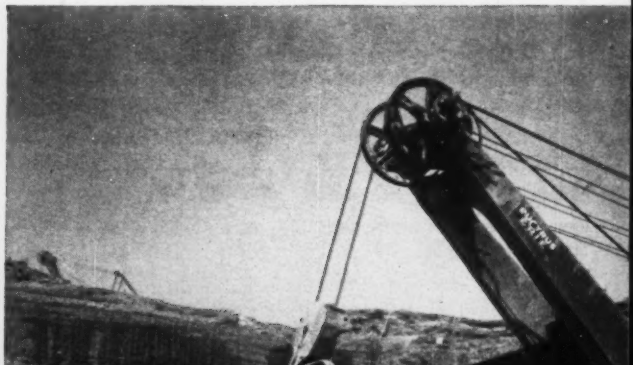
How AMSCO helps you HANDLE



Interior view of Amsco double wave liners in 7′ x 8′ ball mill, using 2″ balls.

Amsco liner on left lasted 123% longer and ground 134% more tonnage than competitive liner on right.





Bucyrus 88 D four-yard bucket, equipped with Amsco Simplex 2-part Teeth, removing rock for power station. All of Tuscarora Constructors' shovels used for rock excavation are equipped with Amsco Simplex Teeth.

MORE TONS PER DOLLAR

Read how AMSCO Mill Liners and Dipper Teeth are outlasting competitive parts in severe service

AT A LARGE NEW YORK ZINC MINE...

THEY'VE DOUBLED SERVICE LIFE WITH AMSCO CHROME-MOLY BALL MILL LINERS

Amsco double wave chrome-moly liners are used on an Allis-Chalmers 7′ x 8′ ball mill at this large northern New York zinc mine. The mill is operating *24 hours a day, six days a week* ... grinding rod mill discharge consisting of sphalerite, pyrite and the balance silicate and limestone gangue.

These Amsco liners ground 670,000 tons during their 29-month life ... as against an average of 286,000 tons and 13-month life for the type of liners previously used. That adds up to over *100% increase in service life*. In addition to their longer life, another fact that impresses the operators about Amsco liners is that there's no circumferential grooving until the very end of their service life.

TUSCARORA CONSTRUCTORS HAVE FOUND...

AMSCO 2-PART DIPPER TEETH ARE "BEST-WEARING TEETH WE'VE EVER USED"

At the Niagara Power Project, Tuscarora Constructors are building the power station and pumping station. They're digging almost entirely in rock, working their dippers 24 hours a day, six days a week.

Dell Lundmark, Equipment Superintendent for Tuscarora, was responsible for selecting Amsco 2-part reversible teeth for his dippers. He'd heard of their fine performance elsewhere, and now describes them as the "best wearing teeth we've ever used". He says the design of the teeth is very good for rock, and adds, "We're getting *15% to 20% longer wear* than from competitive 2-part teeth".

Approximately 10,000 tons of rock are handled before the teeth are turned over ... and tips are easy to replace when completely worn.

This combination of a new alloy steel, plus the design features engineered into the Amsco Simplex Teeth, are causing equipment superintendents everywhere to change to Amsco for better, lower cost digging.

AMERICAN
Brake Shoe
COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.
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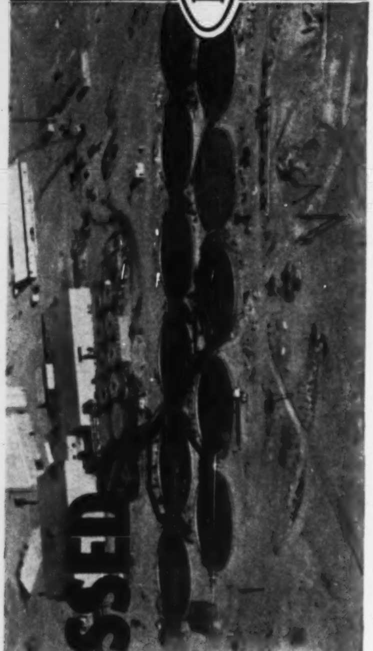

INDUSTRIAL PRESTRESSED CONCRETE TANKS

Write for Bulletin T-15

GRANTS, NEW MEXICO . . . Twelve Thickener Tanks 120'8" diameter. Kermac Nuclear Fuels Corporation.

- LOWEST OVERALL COST
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- ADAPTABLE TO SPECIAL CONDITIONS
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Reader Comment

Utility Tunnels

Sir—Your editorial on Utility Tunnels reminds me of the Nuuanu Highway Project in Honolulu, Hawaii.

I was working for a firm of local "consultants" and was in charge of the relocation and redesign of those utilities affected by the highway. The roadway from Beretania Street to the Punchbowl district passed through a heavily congested area of mixed zoning, high use density and, ultimately, entirely commercial. Virtually the whole road bed was underlain with sewers, water and gas mains, electric power and telephone conduits, and, of course, storm drains, for nearly a mile of high-capacity roadway.

After a period of perusal, I suggested the use of two utility tunnels—each under the sidewalk, roofed with prestressed concrete slabs—into which all the utilities (including the storm drainage and sanitary sewers) could go. The topography favored gravity flow of these sewers and drains and there was a remarkable amount of reliable data on existing utilities. Moreover the invert of the Kalihi interceptor was well below the proposed profile for the tunnels. In short, the set-up was a "natural." It had the appeal of the timely and the opportune.

Apparently I alone was intrigued by the scheme, for in the final plans the "relocated" utilities with their mains and laterals were still under the roadbed of a facility whose practical capacity was in the neighborhood of 6,000 vehicles per hour (all lanes).

Honolulu is a fast-growing city and not much imagination is needed to assay the amount of built-in (and buried) annoyance, expense and congestion such shortsightedness will soon entail.

A. O. Gottschalk
Wisconsin State Highway Commission
Waukesha, Wis.

▶ Regarding your editorial "Why Not Utility Tunnels?" (ENR Aug. 20, p. 132), our company is at present demolishing two such tunnels on the north and south sides of Delancey St. near Chrystie St. in performance of a contract with the New York City Transit Authority.

(Reader Comment continued p. 12)

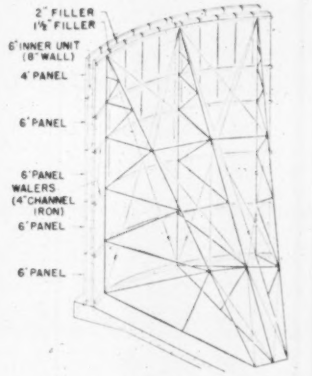
Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Weight 4 Tons

New Use for Symons Steel-Ply Forms

28' Circular Walls Ganged for Sewage Plant

Friebel & Hartman, Shelby, Ohio contractor, with the use of a crane was able to strip and reset 2,300 square feet of forms on inside gang section in 3½ hours. And 8 men in less than 8 hours erected 2,300 square feet of forms and scaffolding on outside plus pouring the concrete. The project was the Mansfield, Ohio Sewage Treatment Plant, which consisted of four digestors.



Four ganged sections were used—each 22 feet wide and 28 feet high. This allowed pouring ⅓ of a tank at a time, and a pour every four working days. Weight of each ganged form was about four tons. A ¾ yard Lorain with an 80' boom handled the sections.

Complete story on the Ohio Sewage Treatment Plant will be sent FREE upon request. Symons Forms may be rented with purchase option.

Symons

SYMONS CLAMP & MFG. CO.
4265 Diversey Ave., Dept. K-9, Chicago 39, Ill.
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MORE SAVINGS FROM SYMONS

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PROFIT-MINDED CONTRACTORS RELY ON *"performance-proved"*

BAY CITY SHOVELS

K & R Construction Company of Camillus, New York, is another satisfied user of BAY CITY equipment. Shown are two of their BAY CITY Shovels—a model 72, 1½ yard and a model 45, ¾ yard—loading bank run gravel for use as sub-base on the Empire Stateway Interstate Route at Syracuse, New York. Busy contractors from coast to coast know that when it comes to moving materials—earth to rock—that BAY CITY Performance-Proved machines will do it quicker with less maintenance.

BAY CITY SHOVELS *are easy to buy with the new 3¾% finance plan*

BAY CITY offers a low-cost 3¾% financing plan that makes it easy to put the Performance-Proved BAY CITY equipment to work for you. Monthly payments up to 3 years on crawler machines . . . 5 years on rubber tire mounted machines. See your BAY CITY dealer.

write for free BAY CITY Catalog!

There is a BAY CITY for every job—a size for every need—get the full story . . . crawler mounted in ☐ ½ yard ☐ ¾ yard ☐ 1 yard ☐ 1½ yard . . . rubber mounted ☐ 15 ton ☐ 25 ton ☐ 30 ton ☐ 35 ton ☐ 40 ton. Write today!

286

BAY CITY

THE WORLD'S BEST BUILT SHOVELS AND CRANES

BAY CITY SHOVELS INC., BAY CITY 1, MICHIGAN

Heavy jobs like this are easy for the big new Cat No. 14 Motor Grader, working here on a section of Interstate Highway System near Corsicana, Texas. Owner: T. L. James & Co. Inc. and R. W. McKinney, Corsicana.

MOST VERSATILE BIG GRADER EVER DEVELOPED

—NEW 150 HP CAT TURBOCHARGED NO. 14!

The first and only Turbocharged Motor Grader, the big No. 14 delivers high production at low operating cost both on the roughest and finest grading work. It packs 150 HP and 29,280 lb. heft to handle heavy work quickly. Operates at the highest practical working speeds with either a 12-ft. or 14-ft. moldboard. You don't have to pick "spots" to make it pay off. You can use it profitably on many different applications such as:

—**power applications** like heavy grading, ditching, rough grading, bank sloping. Its low center of gravity provides extra blading and machine stability.

—**control applications** like light spreading, surface maintenance, fine grading and light blading. With Preco Automatic Blade Control, it controls blade slope within $\frac{1}{8}$ in. in 10 ft.—cuts fine grading time in half.

Some of its many new features are shown here. For the complete picture, see your Caterpillar Dealer listed in the Yellow Pages of your telephone directory. Ask him for a demonstration. Pick the toughest applications you can find—see for yourself how the big, versatile No. 14 can handle any kind of hard work!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

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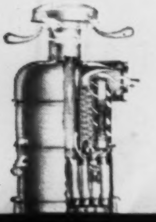
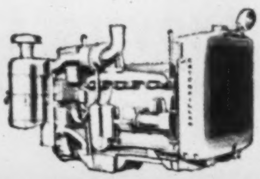
BIG NO. 14—
BORN OF RESEARCH
PROVED IN THE FIELD

PAYOFF FEATURES OF THE NEW NO. 14 — Plus exclusive oil clutch, power steering and power brakes, tubeless tires, extra strength frame, unequaled visibility and many other features.

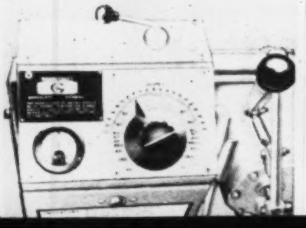
NEW DRY-TYPE AIR CLEANER. Removes 99.8% of all dirt from intake air during **every** service hour. Can be serviced in 5 minutes. Cuts maintenance time by up to 70%. Extends engine life.



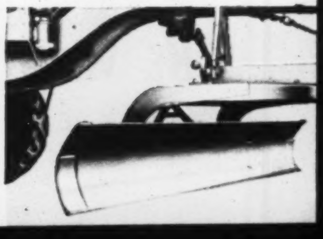
NEW TURBOCHARGED CAT ENGINE. Turbocharger utilizes waste energy from engine exhaust to increase efficiency and economy. Engine provides high torque rise that pays off on the job.



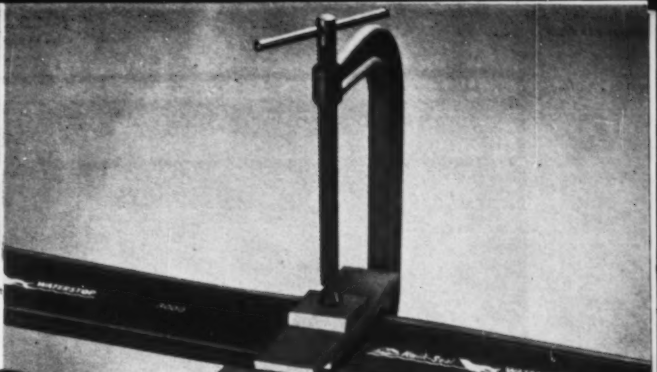
PRECO AUTOMATIC BLADE CONTROL. Optional. Operator selects desired slope on dial. Now transistorized, unit automatically controls blade slope within $\frac{1}{8}$ in. in 10 ft.



HIGH THROAT CLEARANCE. New design permits increased clearance between moldboard and circle for greater loads. Also extra-strong frame, circle and drawbar.



1 Apply Kwik-Kem bonding chemical from handy tube to the prepared surface. Bonding chemical is indicated in red.



2 Place surfaces to be spliced in clamp, apply firm pressure and allow to set for five to six minutes — and it's spliced.

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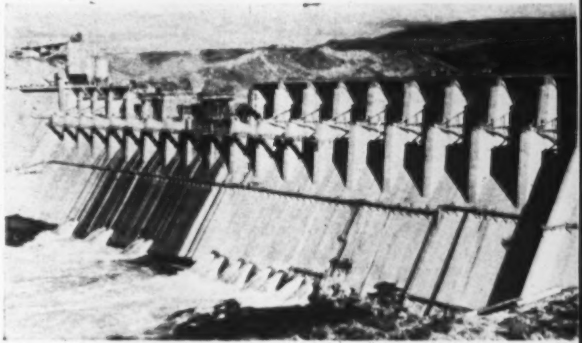

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. . . Reader Comment

These two utility tunnels, built to our knowledge over 30 years ago, have never been occupied. The reason, we have been told, is that the utilities themselves would not locate their facilities in a common tunnel.

DANIEL M. LAZAR
President
Cayuga Foundation Corp.
New York, N. Y.

Credit is Due

Sir—We found the article "Engineering Mission to Guatemala—How It Did the Job" (ENR June 18, p. 130) particularly interesting and wish to compliment you on the unusually good photograph of the Puente Belice Bridge on Guatemala's Atlantic Highway. We regret that no mention was made of the fact that Johnson, Drake & Piper Inc. actually built this entire structure under a subcontract from Fried-Krupp of Germany, who furnished the steel delivered at the site.

It is also a matter of some pride to us that on Guatemala's Pacific Highway, mentioned in the article, our company was the construction contractor for the 72-mile section between Popya and Coatepeque under a cost-plus-incentive-fee contract.

R. P. BAYARD
Executive Vice President and
Foreign Manager
Johnson, Drake & Piper, Inc.
New York, N. Y.

The Missing Author

Robert R. Adams, of Cornell, Howland, Hayes and Merryfield, Corvallis, Ore., was author of the article, "Alternate Designs Pay Off in Low Cost Job," which appeared in ENR Sept. 17, p. 60. His firm was the consulting engineer for the structure described. Because of an oversight, Mr. Adams' byline did not appear with the story.

For Your Calendar . . .

National Safety Congress Construction Section. Hotels Conrad Hilton and Morrison, Chicago, Oct. 19-21. Write: Clement J. Luepke, Staff Representative, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

American Public Health Association, annual meeting, Convention Hall, Atlantic City, N. J., Oct. 19-23. Write: American Public Health Association, 1790 Broadway, New York, New York.

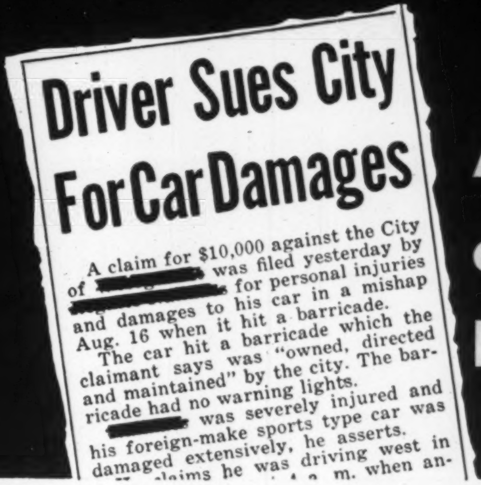
American Society of Civil Engineers, annual convention, Hotel Statler, Washington, D. C., Oct. 19-23. Write: ASCE, Engineering Societies Building, 33 West 39th St., New York 18, N. Y.

Society for Experimental Stress Analysis, annual meeting, Pick Fort Shelby Hotel, Detroit, Mich., Oct. 21-23. Write: Society for Experimental Stress Analysis, P. O. Box 168, Cambridge 39, Mass.

National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Ill. Oct. 22-23. Write: R. D. Meade, 3300 South Federal St., Chicago 16, Ill.

Cast Bronze Bearing Institute, annual meeting, Bedford Springs Hotel, Bedford, Pa., Oct. 22-24. Write: H. Scobie, Non-Ferrous Founders' Society, 1604 Chicago Ave., Evanston, Ill.

Non-Ferrous Founders' Society, annual meeting, Bedford Springs Hotel, Bedford, Pa., Oct. 22-24. Write: Herbert F. Scobie, Non-Ferrous Founders' Society, 1604 Chicago Ave., Evanston, Ill.



Driver Sues City For Car Damages

A claim for $10,000 against the City of [redacted] was filed yesterday by [redacted] for personal injuries and damages to his car in a mishap Aug. 16 when it hit a barricade.

The car hit a barricade which the claimant says was "owned, directed and maintained" by the city. The barricade had no warning lights.

[redacted] was severely injured and his foreign-make sports type car was damaged extensively, he asserts.

claims he was driving west in a. m. when an-

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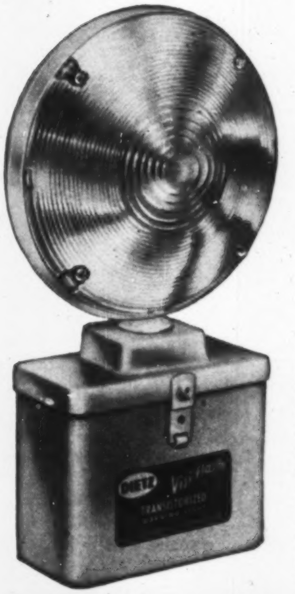

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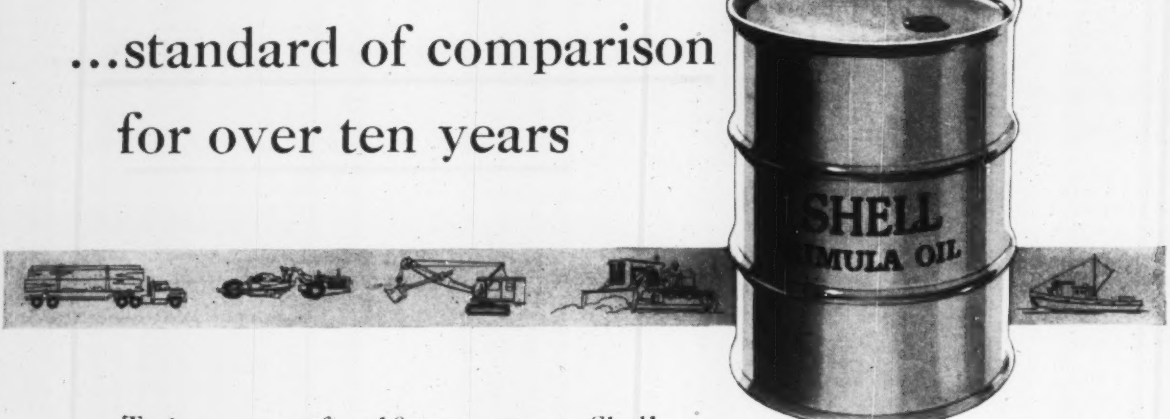

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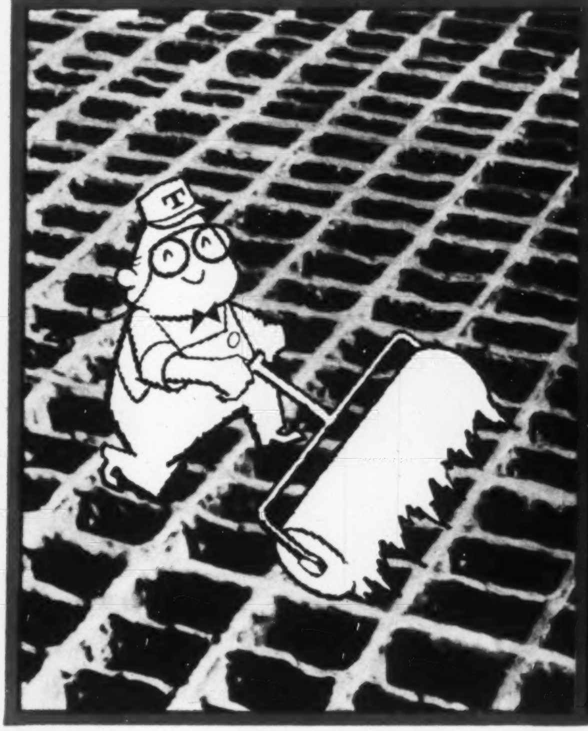

#3 ROLLING OUT A SAFETY CARPET

Steel grid road surfaces on bridges throughout the country have proved a source of frequent vehicular accidents. The Mossdale Bridge over California's San Joaquin River was no exception.

When cars passed from smooth concrete pavement to steel grid, there was an instantaneous and startling sound, vibration and change of wheel traction. This sudden change caused an instinctive reaction in many motorists to apply brakes abruptly, causing disastrous skids and pile-ups.

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ENGINEERING NEWS-RECORD

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Back Issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

STATES SPENDING MORE—In the first nine months of this year, 26 states topped their total contract awards for the same period in 1958. Georgia, Tennessee and South Dakota have more than doubled their year-ago totals. By sections, the South leads in the pickup in construction, zooming 38% over its contract awards for the first nine months of 1958.

ROAD FIREWORKS—Congressmen and Bureau of Public Roads officials scheduled to address the American Association of State Highway Officials convention in Boston next week are sure to get an earful themselves. AASHO members, still smarting from delays to their programs caused by the long Interstate financing debate, are now further irritated by threats of contract controls and the Administration's search for "frills" (see p. 22).

SIOUX CITY SUCCESS—The U.S. Public Health Service's first enforcement order under the 1956 pollution-control act is meeting with success. Sioux City, Iowa, target of the order last spring, has engaged engineers to plan a $6-million sewage treatment plant.

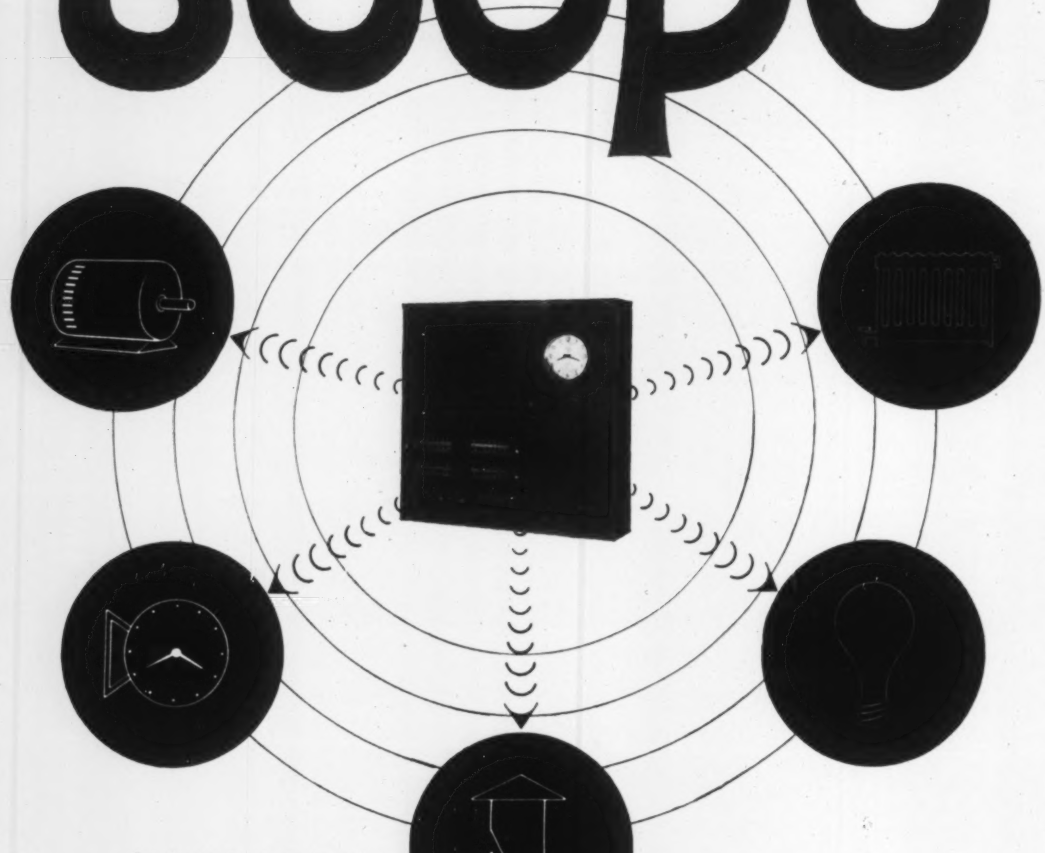
TYPHOON SCOREBOARD—Typhoon Vera cost Japan at least 4,045 lives and $300 million. Damage to structures alone stands at $127 million. The Japanese National Railway reports $4.4 million worth of damages to rail bridges, $2 million in damages to the signal system.

THE BELL TOLLS FOR BONG—The Department of Defense has cancelled contracts for $15 million worth of uncompleted construction at the $80-million Richard Bong Air Force Base in Wisconsin. By dropping Bong, the Air Force hopes to save more than half the $58 million already appropriated for the field. Officials say supersonic B-58 jet bombers scheduled for Bong AFB can be stationed at existing bases where B-47s are being eliminated.

BULLDOZER LAWS—Keep an eye on Montgomery County, Md. An advisory committee is considering legislation to regulate grading and control excavation at sand and gravel pits, to control zoning to provide buffer areas and limit density of structures, and require specific action to prevent soil erosion. Conservationists have convinced the legislature that excessive land clearing in advance of construction is a serious menace.

PEACE RIVER START IN '60?—Advance indications are that the Peace River hydro development in British Columbia will cost $611 million. Work may start next year. It will include at least two major dams, a 500,000-volt transmission line 550 miles long and 3.1 million kw of generating capacity.

SCOPE



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WASHINGTON OBSERVER

- **Plans to develop Columbia Basin move ahead**
- **Hoffa case ranks high on court schedule**

- **A draft of agreement on development of the Columbia Basin is nearing completion in Ottawa this week.** The Canadian and U. S. representatives on the International Joint Commission are reconciling final differences over language to be recommended to the two governments for approval. At least three big Canadian dams are involved in the development plans.

The U. S. Senate and the Canadian Parliament will be called upon to approve the agreement.

One thing to count on: a Canadian program that would permit construction of the U. S. Libby Dam, on the Kootenai River, which has already been authorized by Congress.

Passamaquoddy power development is also being considered during the four-day meeting. The IJC will dig into engineering-economic feasibility and effect on fisheries of the proposed "harness the tides" project on the Bay of Fundy, between Maine and Nova Scotia.

The U. S. is short one commissioner at the meeting because of the death of Chairman Douglas McKay. Eugene W. Weber of the Army Engineers is acting chairman.

Hot prospect for the vacant post is ex-Senator Guy Cordon of Oregon, now practicing law in Washington.

—

- **The U. S. Supreme Court gets down to cases next week,** after opening ceremonies marking the official start of the 1959-1960 term. The justices now begin the process of selecting and rejecting cases that will come before them for ultimate decision.

The court's docket is crowded with a large number of labor and business cases again. Decisions in the months ahead will cover a wide range of state and federal government activities of importance to the construction industry.

James Hoffa's attack on the authority of the teamsters' board of monitors ranks high in significance. Mr. Hoffa's union is asking the court to strike down an interpretation of the consent decree by which he became provisional president and which set up the monitors to police teamster union reforms. If the Supreme Court refuses to hear the teamsters, the monitors will be free to step up their demands for action on reform measures immediately.

Water pollution will get a going-over. The court already has agreed to rule in a major case brought by the government against three steel companies over deposit of solid wastes in the Calumet River near Chicago. Lower courts have said the government cannot require the companies to pay for dredging a channel in the river, being clogged by their wastes.

Other cases to watch: The Niagara Power Project, blocked by rulings involving use of Indian lands, may be cleared by Supreme Court action; Lake Michigan water diversion—in which six states challenge Chicago's use of lake water—may reach the court from the special master now holding hearings; and a decision is due on federal versus state rights to mineral-rich submerged lands beyond the three-mile limit.

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When Can You Get Steel?

- **After a shutdown it takes at least six to eight weeks to resume the normal cycle of production and fabrication.**
- **Imported steel won't do much to help the growing pinch either. The dockworkers strike has cut off new supplies.**

Don't expect steel shortages to ease just because the mills open. A trickle of steel may be available as early as one or two weeks after work resumes, but constructors can count on waiting six to eight weeks before the supply is normal.

And foreign steel won't ease the pinch in the meantime. A sudden walkout of dockworkers on the Atlantic and Gulf coasts has blocked that supply.

One key to how soon normal steel supplies will be flowing to construction sites is the amount of damage sustained by the cold furnaces during the long period of inactivity. Some steel men say they had enough time before the walkout to bank their furnaces properly, thus keeping damage to a minimum. But others say a shutdown of more than 80 days can't help but do extensive harm to the furnaces.

Early reports on the open hearth furnaces are not encouraging. Damage to the refractory lining of an open hearth can take up to a week to repair. What shape the blast furnaces are in won't be known until they are tapped again.

Quality is another problem; it's difficult to control during the first heat. "It could take up to three weeks before we regain standard quality," says a spokesman for one of the major producers.

The history of steel strikes in the recent past offers few clues to how long it will take to get full production. After a strike of 55 days in 1952, steel production was normal in 10 days. In 1956, however, it took six weeks for normal production after a strike of only 34 days.

This year production could be slowed deliberately. The strike was longer and the stakes higher (see p. 87). There is some talk that the steelworkers are in no mood to give their all, particularly if forced back to work under an 80-day Taft-Hartley injunction.

Some mills are trying to minimize start-up time by buying and stockpiling ingots and semi-finished steel. These can be processed by secondary and finishing mills while furnaces are put into operation.

In predicting delivery dates after the strike ends, fabricators are less optimistice than the producers. A spokesman for the American Institute of Steel Construction estimates a minimum of six weeks from the time mills resume production before fabricators can start delivering the simplest type of beam and column members in quantity.

Fabricators in the Chicago and Cleveland areas think it will be eight to ten weeks before they can deliver substantial amounts of steel to contractors.

Several large, independent fabricators in the New York City area point out that the production cycle within their shops takes two to three months alone. As one explained it: "It generally takes an eight-week cycle for us to fabricate all the steel for a job, because different sizes and types of steel products are rolled in different weeks."

Another New York City fabricator, who is quoting delivery dates four to six months from the time he receives an order, says: "We divide a job into sections, first producing foundation steel, then steel for the lower floors, and so on. This is normally a two- to three-month cycle, but sometimes we have several cycles going at the same time."

In talking about their current supplies and operations, fabricators around the country are still reporting near-normal production. But an ENR spot check shows that fabricators could begin curtailing operations within three to four weeks.

Actually, the situation is more serious than it appears to be. The pipelines from the mills are virtually empty. And many jobs are shut down. Many fabricators will run out of steel weeks before substantial quantities are again coming from the mills.

A few fabricators have exceptionally good stocks. A few in the Dallas-Ft. Worth area have "three- to four-month, well-rounded inventories," and one in Cleveland can "operate seven more months at the current demand." But those are definitely in the minority.

Spot shortages are already appearing in fabricators' stocks—particularly in wide-flange sections and heavy plate steel. Fabricators in Los Angeles, Cleveland, Atlanta, Dallas-Ft. Worth and Chicago are low on these items.

Many fabricators also report unbalanced inventories in angles, I-beams, and channels.

According to AISC, 80% of its members are still booking orders on jobs up to 300 tons. However, August shipments by fabricators were down 26% below August of 1958—to 220,000 tons. At that rate of shipping, it will take eight months for fabricators to fulfill just their current orders.

Meanwhile, the strike is affecting architects' plans, contractors' schedules and workers' pay checks.

In Los Angeles, the Tishman Building and the Hall of Records are shut down—that represents $25 million worth of work. Highway work is delayed in New York and Ohio. Construction on Chicago's new filtration plant and convention hall is affected.

In Atlanta, the strike has delayed construction of a bridge and several buildings. Several large office and college buildings in Canada are awaiting new steel supplies. And there are plenty of other examples.

To get around the current shortage, some Toronto architects are turning to reinforced concrete design. In Ft. Worth and Atlanta, engineers are redesigning some members or substituting other sizes. The State Highway Department of New York substituted aluminum guardrails and prestressed concrete beams for steel products to continue highway work in the Rochester area.

Until the dock strike, imported steel had prevented more serious harm to the construction industry. Contractors and fabricators, particularly along the Great Lakes and seacoasts, have been forced to buy foreign steel to keep jobs going or fill holes in their inventories. Some of them would have turned up their noses at the idea of using imported steel a few months ago.

One fabricator in Dallas estimates that 90% of the steel purchased by contractors in the area is foreign. A Detroit contractor claims that 80% of the jobs in that city are using some foreign steel. But he complains that he has to pay a premium of $16 per ton on imported steel.

That's a common complaint. The demand for foreign steel has pushed prices up to and even above domestic prices. They had been $30 to $35 per ton cheaper. And contractors report they cannot get delivery on imported steel before next spring.

July imports of steel—430,000 tons—were the highest monthly total ever hit, according to the U.S. Department of Commerce. The U.S. imported almost 2.7 million tons of steel in the first eight months of 1959, more than in any previous year. Over half of these imports were reinforcing bars, structural shapes, pipe and tubing, piling, plates and wire rods—all construction items.

Besides cutting off this flow of construction steel, the dock strike also cuts off imports of iron ore. This could mean the mills will be short of ore, because domestic movement stops when the Great Lakes freeze over.

Highways: Budgeteers Take Over

- **Budget Director Stans' growing influence may bring drop in reimbursements for first half of '60.**
- **General Bragdon's study of highway "frills" will be heavily weighted by defense needs.**

Whether highway engineers, contractors and individual states like it or not, the big decisions on the immediate future of the highway program will be shaped largely by President Eisenhower's own White House aides.

Behind the recent hassles that have delayed allocation of federal-aid highway funds to the states is the new authority on pending highway program decisions given by the President to Budget Director Maurice Stans and Maj. Gen. John S. Bragdon, Assistant to the President for Public Works Planning.

Mr. Stans has his eye on a balanced budget; General Bragdon has his on "frills" and the needs of defense transportation. Mr. Stans' position is such that he can rule on spending issues, and make his rulings stick. Gen. Bragdon's recommendations on his areas of interest will carry great weight because of his closeness to the President.

For the time being, at least, the Bureau of Public Roads has been relegated to the sidelines.

The two White House aides are combing over the proposed contract controls that state highway officials have been discussing with Highway Administrator Bertram D. Tallamy. Object of these controls is to keep construction expenditures from exceeding cash available to the Highway Trust Fund.

Mr. Stans, with President Eisenhower's full backing, seems likely to try to enforce the highway program on a strict pay-as-you-go basis.

Here are the figures:

For bills due the states between now and December 31, Congress authorized the Trust Fund to borrow $359 million from the Treasury without any specific deadline for repayment. But Mr. Stans wants that money returned by June 30. **This could mean some $160 million that will come due to the states in the January-June period will have to be withheld, or the Trust Fund will show a deficit.**

What's worse, under normal federal allocations the Trust Fund will be some $400 million in the red by June 30, 1961, according to figures supplied to Congress.

Implicit in these financial facts of life are some sort of contract controls, and soon. That conclusion is not lost on state highway officials. Half the states are holding back on bid advertising for federal-aid projects until they know precisely whether the federal government will make good on cash due the states this year and next, at the very least.

While Mr. Stans wrestles with the ledgers, General Bragdon's task force is taking a close look at the road construction itself—at Interstate policies, practices and standards, with special emphasis on how they square with defense needs.

The military would like to see the rural sections between cities and the routes around major cities completed first. They can get along without the more costly terminal mileage that ties the cities to the rest of the system.

Defense planners can also make do with routes limited to four lanes. They can move the big missiles over a two-lane roadway (on either side of a divided four-lane route) as readily as over an expressway of greater width. The budget people also favor this limitation.

Thus the defense planners and the budgeteers are natural allies.

One point of friction between them is the military's proposal for higher—more expensive—bridge clearances to guarantee free movement of big weapons. Present minimum clearance is 14 ft 6 in. But the Defense Department has not offered to share any of the cost, although railroad bridge clearances, among other considerations, make road transportation for missiles mandatory.

The military sees no objection to what is perhaps the most controversial proposal the budgeteers have yet come up with: that the cities and states pay the cost of all facilities for local traffic in metropolitan areas.

The proposal leaves highway people aghast—it would deny federal Interstate aid to urban motorists who now pay 49% of all highway-user taxes. Even as now authorized, only 42% of the Interstate funds is channeled into the more expensive urban routes against 58% for the rural sections.

As controversial and politically charged as that proposal seems to be, some observers think there is a real possibility, it will be recommended to the President, given the present temper of Administration thinking. Congress, of course, could provide some real opposition.

Meanwhile, highway officials hope the emphasis on budget and military needs will not obscure the fact that the Interstate is meant to meet the needs of 1975, not just today.

States Plan Joint Control Of Delaware Development

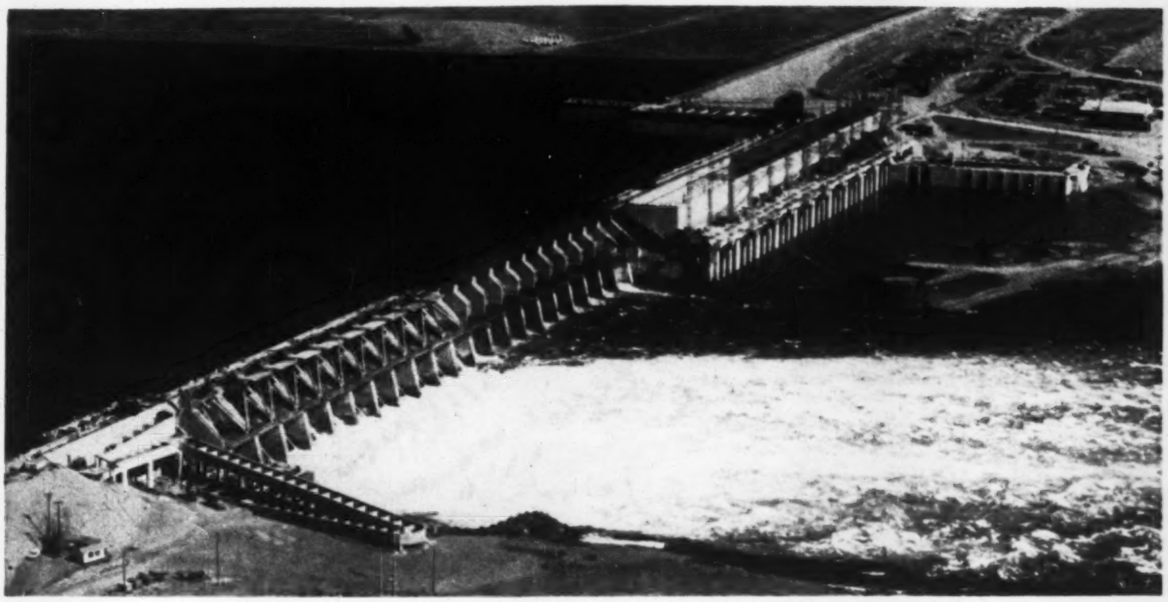
The four states bordering on the Delaware River are moving toward eventual joint control of water resources development in the basin.

Hard on the heels of a Syracuse University recommendation for basin control by a federal-state commission (ENR Sept. 24, p. 21), the governors of New York, Pennsylvania, New Jersey and Delaware and the mayors of New York City and Philadelphia have established a six-man committee to draft a federal-interstate compact.

The aim is to create a single agency with over-all authority and responsibility for basin development.

After review and approval by the governors and mayors, the proposed agency must finally be accepted by the legislatures of the four states concerned and by Congress.

It is expected to go to the legislatures in 1961 (see editorial p. 100).



With first power about to start flowing from new Columbia hydro plant . . .

It's Payday at Priest Rapids

Sixteen months ahead of schedule, the wheels in the powerhouse at Priest Rapids Dam are expected to start spinning out kilowatts next week for the Grant County (Wash.) Public Utility District—and dollars for Merritt-Chapman & Scott Corp., the general contractor.

For Merritt-Chapman, it's the start of bonus money that company spokesmen concede may go as high as $4 million by job's end if all continues to go well. Other opinion puts the likely total closer to $5 million. For the Utility District, it's a head start on the power sales counted on to pay for the $98-million job.

The contract gives the contractor 1,900 days (from July 16, 1956) to complete the work. It stipulates a penalty of $3,000 a day thereafter for each generating unit not producing power and a bonus of $1,300 a day for each unit operating before the deadline.

About 700 bonus days remain. Merritt-Chapman has high hopes of starting up a second unit in about six weeks and putting the others on line at about two-month intervals. There will be 10 units in all.

Operation will be under reduced head for some time. This would not have qualified for a bonus under the original contract, which specified full-head operation. But Merritt-Chapman and district officials agreed later on a prorated bonus payment for low-head power delivered before the deadline.

That made a happy arrangement for all concerned. The contractor could concentrate first on getting power flowing, then on finishing the job.

It's no lucky accident that Merritt-Chapman is ahead of the deadline. (Though job progress has not exactly been hampered by two exceptionally mild winters and a freakish assist from high water.)

First, the owners made the job more attractive to bidders by allowing more time than they figured it would take. Second, before bidding, Merritt-Chapman (and some of the losers, too) planned the work to make the most of the extra time. Another big factor, Merritt-Chapman spokesmen say, is plenty of manpower and equipment, more than it would take merely to do the job.

Right from the beginning, Merritt-Chapman concentrated on the payoff point—the powerhouse. Departing from the practice followed by contractors downstream at The Dalles and McNary dams, they surrounded the powerhouse area with a high cofferdam intended to permit uninterrupted construction through the Columbia's annual April-July high water. The rest of the first-stage construction was enclosed in a low cofferdam with the expectation that it would be overtopped.

The gamble paid off handsomely. They gained not only the season's head start they were after on construction of the powerhouse, but about 55,000 cu yd of free excavation to boot. Constriction of the swollen river between the high cofferdam and the right bank speeded up the water so much that it gouged out a big chunk of right bank that otherwise would have had to be excavated later by men and machines.

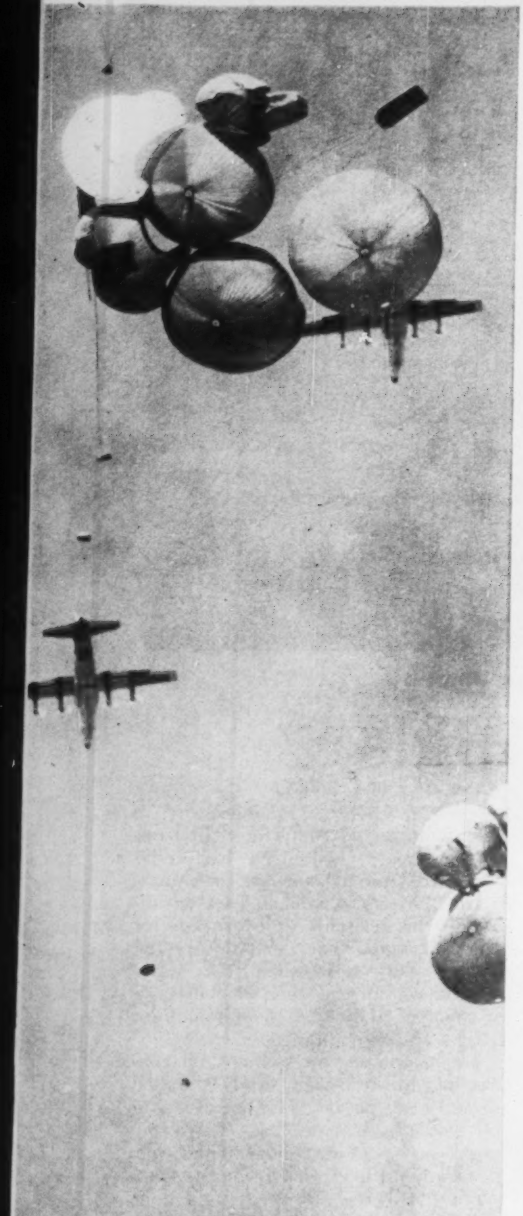
Here, Merritt-Chapman took advantage of its flexibility as contractor for the whole job. They moved into the washed out area when the water dropped and placed some 13,000 cu yd of concrete. This gave them a jump on a later construction stage.

In constructing the spillway, the contractor also remained firmly oriented toward early power. The ogee sections of half the spillway bays were concreted only part way up. Stoplogs were installed on the upstream side and completion of the ogees was left to be done after the powerhouse was in operation.

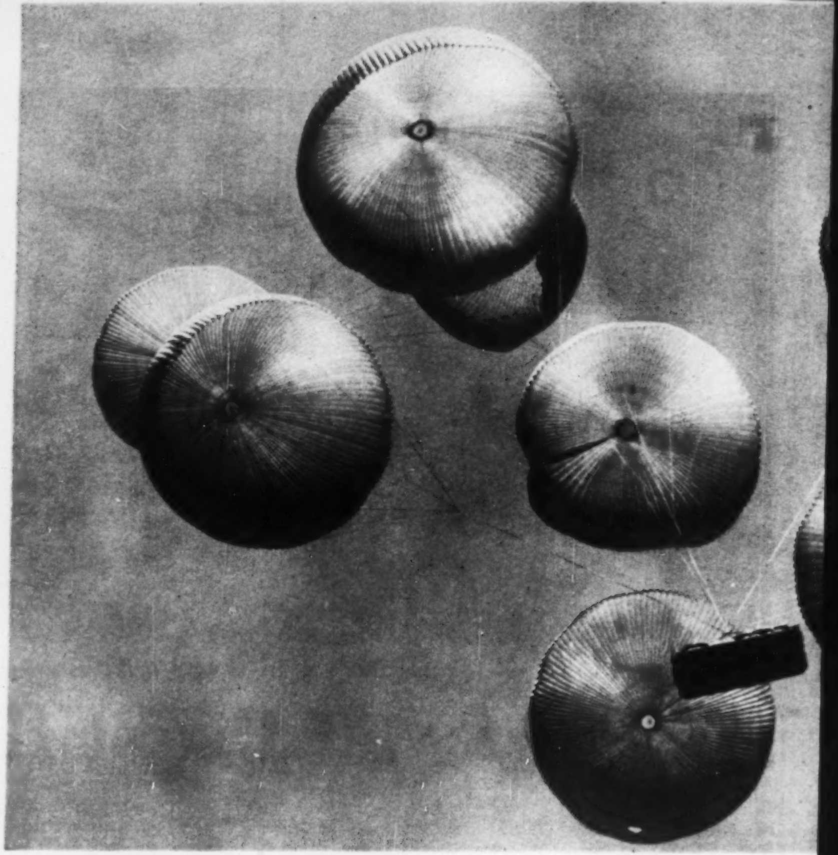
The original contract on Priest Rapids called for installation of eight generating units plus provision for two more. The owners decided later to put in all 10 at the start. Design of the project will permit eventual installation of six more units.

The wheels are Kaplan type, with adjustable blades. This choice makes the low-head operation possible. Power output of the generating units under full head, 78 ft, will be 78,850 kw each. Under low head, 45 ft, they will produce about 45,000 kw. The job is now about 85% complete.

Robert J. Jenks is Merritt-Chapman's project manager at Priest Rapids. Robert B. Jackson is resident engineer for Harza Engineering Co., Chicago, designer and construction supervisor for the owner.



1. Planes spew out earthmovers.



2. Spotted against the giant parachutes easing it to earth is a platform holding

4. Engineers rush to de-rig the carefully packed equipment.

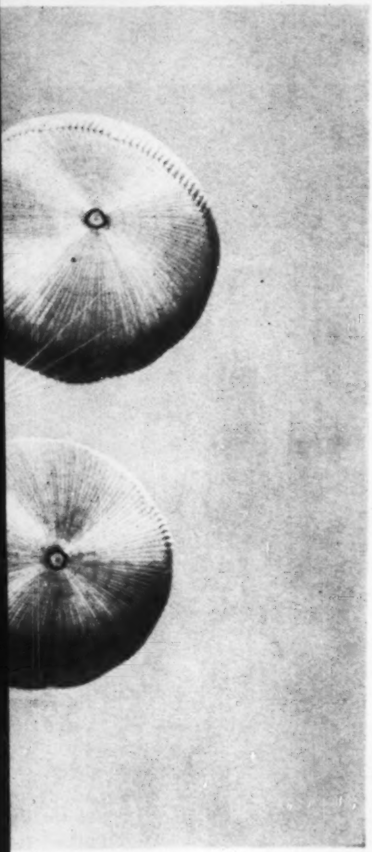
Out of the Sky: Heavy

The showers were normal in northwest Kentucky on Tuesday last week. But on Wednesday, the rain turned to an intermittent shower of bulldozers, tractors, graders, trucks and other equipment.

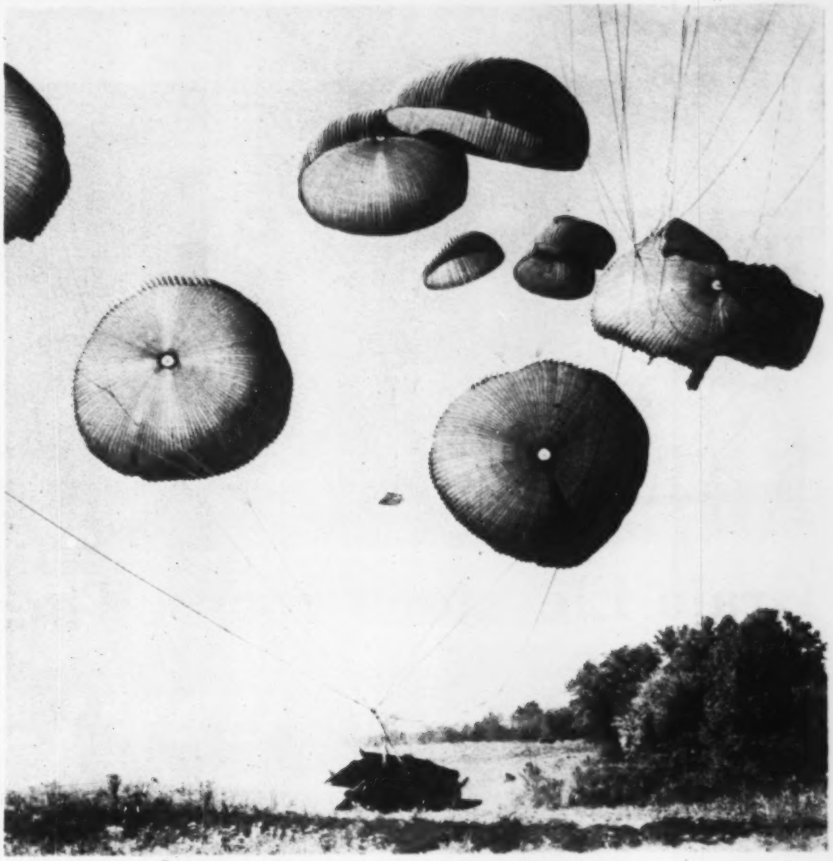
The construction workhorses tumbled out of planes and floated down to earth on parachutes. In 9½ hours spread over a day and a half, C-130s dropped 87 loads of the stuff it takes to build an airstrip.

Twenty-two were monster loads, each weighing 20,000 lb. Five bulldozers, eight dump trucks, six tractors and three road graders came down. It took six 100-ft-wide parachutes to ease each piece of big equipment to earth. Smaller parachutes lowered the remaining loads, which were made up of lesser equipment, tools, arms, ammunition, food and water.

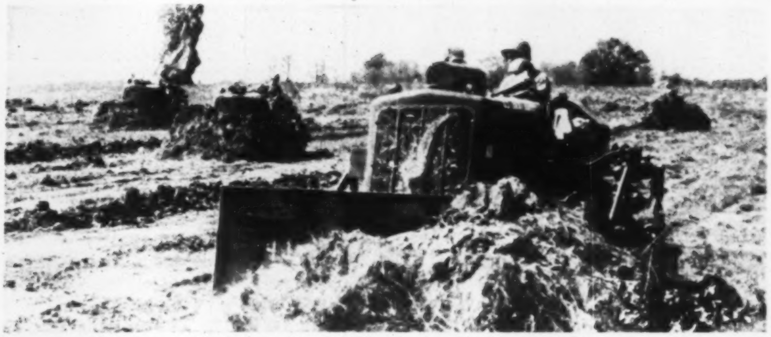
The occasion was the first mass air drop of construction equipment. It was a combat test by the 101st Airborne Division's 326th Airborne Engineer Battalion, Fort Campbell, Ky. The drop zone was at nearby Camp Breck-



an earthmover.



3. Landing kicked up dust, but didn't hurt the equipment.



5. Thirty minutes later they're starting to build an airstrip.

Construction Equipment

inridge. The area had been "seized" by paratroopers and an airstrip had to be built for reinforcements and supplies.

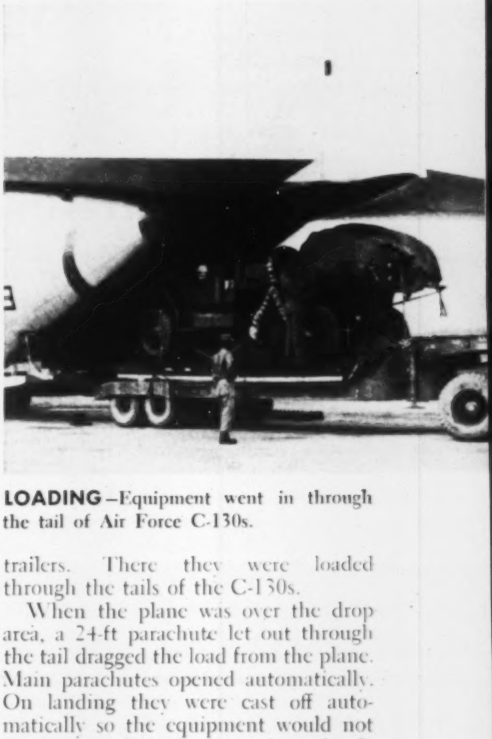
The whole operation went without a hitch. Only 80% of the dropped equipment was expected to come through in usable condition. But every piece was in working order.

Within 30 minutes after the first bulldozer hit dirt, it was clearing underbrush. Within 48 hours, a 2,500-ft-long, 60-ft-wide landing strip had been built. Over 40,000 cu yd of dirt were moved to do it.

The equipment used was specially designed and developed in cooperation with manufacturers (ENR Mar. 11, 1954, p. 36).

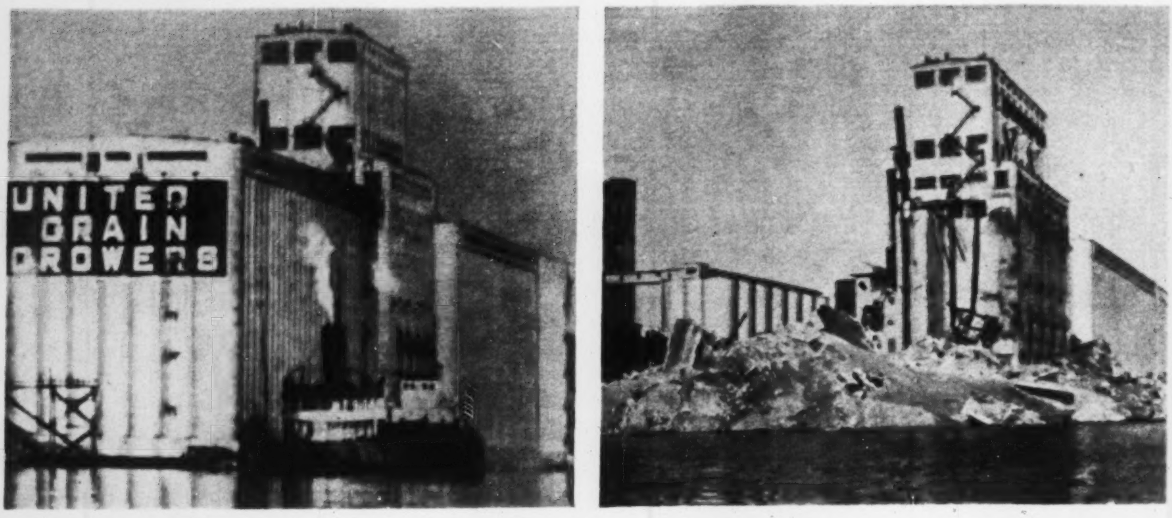
Getting it ready for the drop was a massive exercise in packing and rigging. Each machine was mounted and tied down on a thick wooden platform, 22 ft long and 8 ft wide. Loads were cushioned against landing impact by scores of shock pads. Parachutes were attached with 80-ft-long risers.

The platformed loads were trucked out to the take-off field on flatbed trailers. There they were loaded through the tails of the C-130s.



LOADING–Equipment went in through the tail of Air Force C-130s.

When the plane was over the drop area, a 24-ft parachute let out through the tail dragged the load from the plane. Main parachutes opened automatically. On landing they were cast off automatically so the equipment would not be dragged about by ground winds. It took about 30 minutes to de-rig each piece and put it into action.



Grain Elevator Groans, Then Goes

One third of a giant grain elevator structure collapsed in Port Arthur, Ontario, last week dumping 2.5 million bushels of grain into Lake Superior.

The portion that collapsed consisted of 56 bins arranged in a 4 by 14 grid, built 30 years ago as single monolithic concrete structure. Standing 115 ft high, the structure measured 100 by 375 ft. It extended out from a central "workhouse" and elevator enclosure dividing it from another series of elevator bins (picture).

Preliminary estimates set the damage and loss at $4.5 million. No one was injured. Two men working in the elevator escaped from the building before it toppled when they heard the structure "start to rumble."

Foundation repairs were made on the elevator just last summer. Originally built on fill contained by a Wakefield sheetpiling system, the collapsed section extended into the water at the end of a shiploading slip. Last summer, an inspection showed there was some underwater loss of fill. Thunder Bay Harbor Improvements, Ltd., installed 250 ft of steel sheetpiling dockwall along the elevators and replaced approximately 500 cu yd of lost fill.

Just 24 hours before the structure toppled over, engineers noted a "small lateral movement" at the outboard end of the elevator, but it was impossible for shipping to take on the grain that nearly filled the bins. And the condition of the structure wasn't considered dangerous at the time.

C. D. Howe Co., Ltd., Port Arthur consulting engineer, is conducting an investigation into the cause of the failure for the owners, United Grain Growers, Ltd., Winnipeg. J. M. Fleming, president of the engineering firm, said that the small lateral movement at the outer end of the structure apparently acted progressively through the entire section of elevator bins. C. D. Howe and Co., predecessors of the present company, designed the original elevator structure.

More Battles Ahead on Snake Plans

Another episode in the controversial Snake River story appears ready to unfold.

The Pacific Northwest Power Co. has filed a revised license application with the Federal Power Commission for construction of High Moutain Sheep Dam in Idaho just above the Snake's confluence with the Salmon River. The FPC is expected to set a hearing date on the application shortly.

The commission turned down PNP's previous application early last year (ENR Jan. 30, 1958, p. 24) on the grounds that the two-dam scheme (Low Mountain Sheep and Pleasant Valley) would not be as beneficial as a high dam downstream at Nez Perce. Since shortly after the rejection, the utility has had an incomplete single-dam application on file with FPC.

Although High Mountain Sheep has found favor among several groups, it is expected to produce as much fireworks—if not more—as the Hells Canyon fight. The Army Engineers favor a dam at the site; in fact, many of the Engineers' recommendations are included in the company's license application. And private companies located in the area are for it.

Four of the larger companies in the area compose Pacific Northwest Power Co., each owning a quarter interest. They are Montana Power Co., Washington Water Power Co., Portland General Electric Co. and Pacific Power & Light Co.

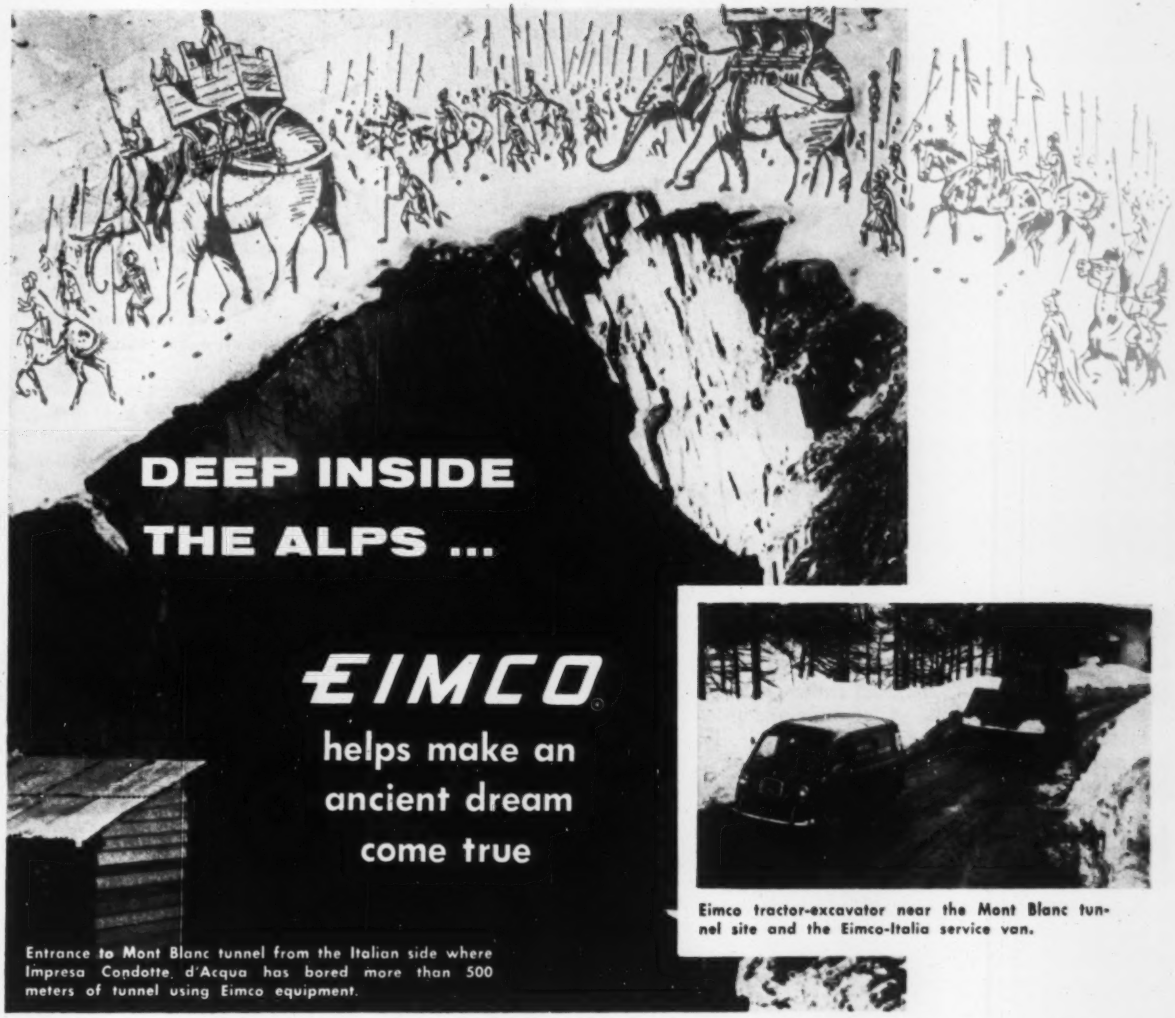
Opposition is expected from public power groups, which would prefer the dam to be federally built, and possibly from the Interior Department and conservationists, who fear the dam would be harmful to migratory fish.

Interior has recommended that any dam built be located farther upstream at the Pleasant Valley site, where no appreciable fish damage would occur. Interior has long looked favorably on construction of a dam at the Nez Perce site, but has held back on that project until satisfactory fish facilities could be developed to handle such a large high dam. In the meantime, the department has urged that no other project—such as High Mountain Sheep—be built to block eventual construction of the Nez Perce Dam.

The revised plan calls for a higher, bigger dam (690 ft high, 1,510 ft elevation), creating 3.6-million acre-ft of storage and with maximum generating capability of 2 million kw.

The project would cost $178 million.

Initial generating capacity would be 875,000 kw from five units—three on the Oregon-side powerhouse, two on Idaho side—while maximum capability of these units would be 1 million kw.



DEEP INSIDE THE ALPS ...

EIMCO helps make an ancient dream come true

Entrance to Mont Blanc tunnel from the Italian side where Impresa Condotte d'Acqua has bored more than 500 meters of tunnel using Eimco equipment.

Eimco tractor-excavator near the Mont Blanc tunnel site and the Eimco-Italia service van.

Ever since Hannibal made his historic crossing of the Alps, men have dreamed about tunneling a roadway through Europe's highest peak, 15,781 foot Mont Blanc. This tunnel now is becoming a reality with Eimco 105 Tractor Excavators being used for mucking. This will be the world's longest (7.5 miles) vehicular tube and will link France and Italy with an all-weather highway when completed in 1961.

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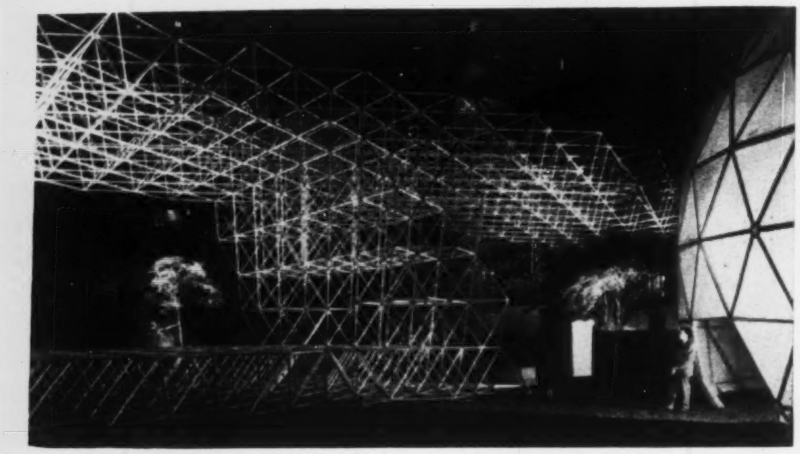


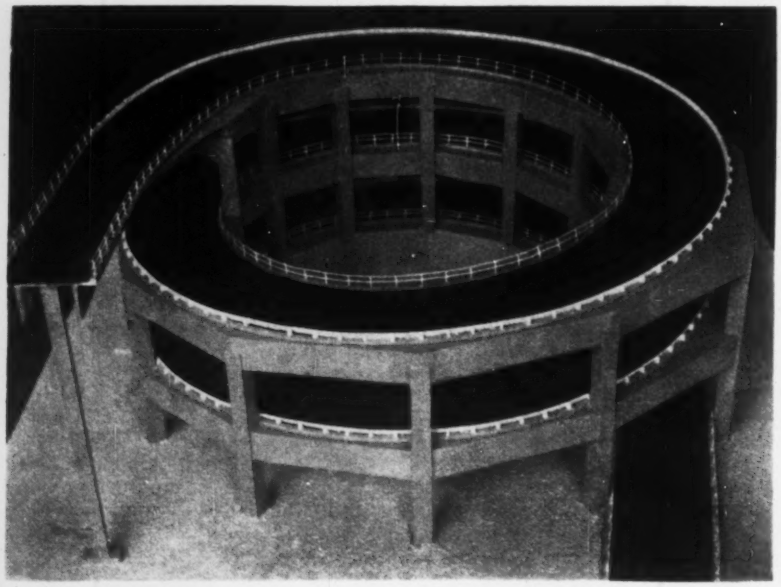
It's a Modern Museum Piece

This space frame is one of three structures designed by Buckminster Fuller now on exhibit at the Museum of Modern Art in New York City.

The framework, 35 by 100 ft, cantilevers 60 ft out from a 20-ft-high support in the museum's backyard garden. It's composed entirely of aluminum tubes, 2,380 in all, and cast aluminum connectors. Each tube and connector unit weighs just 3.7 lb.

Mr. Fuller calls it an "Octet Truss," since the frame is constructed by arranging the gold-anodized tubes in octahedrons and tetrahedrons. He emphasizes the frame's flexibility and lightness and its high strength to weight ratio. Additions can be made in any direction and supports placed almost at random instead of being regularly spaced.

The other structures on exhibition are a 55-ft-dia green plastic radome and a 36-ft-high aluminum mast, which Mr. Fuller calls a "tensegrity" mast.



Work Starts on Spiral Approach

Construction began in Japan on a two-and-one-half-turn spiral approach to a 4,000-ft bridge across Ondo Strait between Kure and Kurahashi Island.

The spiral approach will be 1,650 ft long, 18 ft wide and 80 ft high. This approach is the first of its kind in Japan. It is being built because the elevation of Kurahashi Island is about 100 ft lower than that of Kure.

Cost of the project, including the bridge, will be $1 million.

Roads Start Again

States resume road work, but on a smaller scale

State highway departments around the country are starting to resume operations, although there are still some clouds ahead. Many states are waiting to see what develops from Administration studies now in progress (see p. 22) and coming Congressional probes.

California has called for bids on highway construction for the first time in two months. The state's Division of Highways called a halt to advertising early in August because of the uncertain future of federal aid. The recent bid calls are for $9.5 million in federal-aid secondary roads. Bids for state highway projects come next.

Maryland will get back into highway construction in a few weeks. The state will invite bids on some $6 million worth of highway work before the end of the year on the basis of funds already on hand. No further work will be advertised until the Bureau of Public Roads announces its fiscal 1961 allocations.

New Jersey's highway program for 1959-1960 will have $119.5 million to work with, instead of the $142 million planned before federal aid was reduced.

Illinois highway building is hampered not only by a shortage of money, but by a shortage of steel. Springfield expects to get about 25% less in federal aid than its early estimate of $128 million. Shortage of steel beams may slow up work on Congress St. Expressway in Cook County.

Michigan's highway commissioner warned the state's roadbuilders to look for a drop in federal aid from last year's $96.2 million to about $70 million for 1959-1960 and a review of state projects scheduled for contracts during the coming eight months.

Arkansas has just signed 12 contracts for $6.4 million in work that was tentatively awarded six weeks ago. It will award another $6 million shortly.

Wyoming confirmed $2.2 million in highway awards that were made conditionally last July. No further work will start until its highway department learns the status of the deficit in the Highway Trust Fund.

Minnesota and **Wisconsin** advertised for bids late in September.

New York has a $39-million bid opening scheduled for mid-October including two Interstate projects of $7.1 million and $8.7 million.

Pennsylvania will advertise $35 million worth of road jobs this **month** and call for an additional $100 million in federal-aid jobs between November 1 and February 1.

Around the Country . . .

• School fire safety—A program designed to make Detroit public schools fire safe has been approved by the city's Board of Education. The program calls for direct fire alarms in all 300 public schools, sprinkler systems in some or all parts of all schools, and fire-detection and automatic alarm devices in all schools. It will cost $2 million.

• Out of business—Legislation aimed at more flexibility in acquiring right-of-way for highways was defeated in Pennsylvania. The new legislation would have allowed the state highway department to purchase an entire tract of land and then lease or sell those portions not needed for highway easement. Present law permits the department to acquire easements only through condemnation.

• Sewerage-aid record—Since the construction grants program began under the Federal Water Pollution Control Act of 1956, 664 sewage treatment projects valued at $157 million have been completed with federal help. Another 561, costing $457 million, are under construction.

• Federal building expansion—The General Services Administration will spend $6 million to add four floors to the existing Post Office and Court Building in Philadelphia. The expansion design, by the Ballinger Co. and Harry Sternfield, both of Philadelphia, will add 150,000 sq ft.

• Store construction program—Montgomery Ward & Co. will spend $500 million over the next five years for expansion. C. J. Kushell, Jr., financial vice president, says the company will open 10 new stores by the end of this year.

• Portland Hotel—Construction of a $10-million Portland-Hilton Hotel is scheduled to start in early 1960 in Portland, Ore. A 21-story tower unit will rise from a four-story base. The hotel will have 500 rooms.

• Planning ahead—To prepare for the impact of the Narrows Bridge, Parsons, Brinckerhoff, Hall & Macdonald, New York City, will make a study of Staten Island's waterfront, including piers, bridges, railroads and ferries.

Huge Radar for Puerto Rico

The Department of Defense will build a 1,000-ft-dia radar installation in Puerto Rico from a design made at Cornell University's colleges of electrical and civil engineering.

Two innovations make the outsized radar possible:

- There will be no moving frame for the parabolic reflector; the pickup-transmission "seed" will do all the moving at the top of a 435-ft-high tower.
- There will be no structure for the reflector; the installation will be in a natural limestone sink that's a nearly perfect paraboloid in shape just as it is.

Construction will be comparatively simple for an installation of this size. There are only a few inches of soil over the limestone. Bulldozers will remove this cover and the scrub growing in it and dress the basin to its final shape.

Crews will peg down aluminum wire mesh on the limestone to form the reflector, covering the entire 350-ft-deep depression.

Final design details of the tower haven't been finished, but performance requirements indicate it will be a complex structure. Advanced Research Projects Agency, the group sponsoring the installation, first saw the design when it was for a fixed-beam rig. Their comment: "Don't stop now, make it up as a movable-beam rig." So instead of $2 million, cost rose to the present $4.5-million estimate.

For the intended 20-degree sweep from vertical, the tower will have to provide a 150-ft travel in any direction from center for the transmitter.

Erosion and drainage should be no problem. The limestone is firm enough to withstand runoff and at the same time porous enough to absorb any accumulation of water after a storm.

Neither Rain Nor Heat Will Touch Canal Street

Glass-enclosed, air-conditioned sidewalks are part of a plan for an elevated expressway proposed for Canal St. in New Orleans' business district.

The space below the elevated roadway would be assigned to retail sales facilities flanked by the cool, all-weather sidewalks.

De Laureal & Moses, New Orleans consultants who proposed the plan, would make the seven-eighths-of-a-mile elevated stretch a limited-access route to a planned riverfront expressway.

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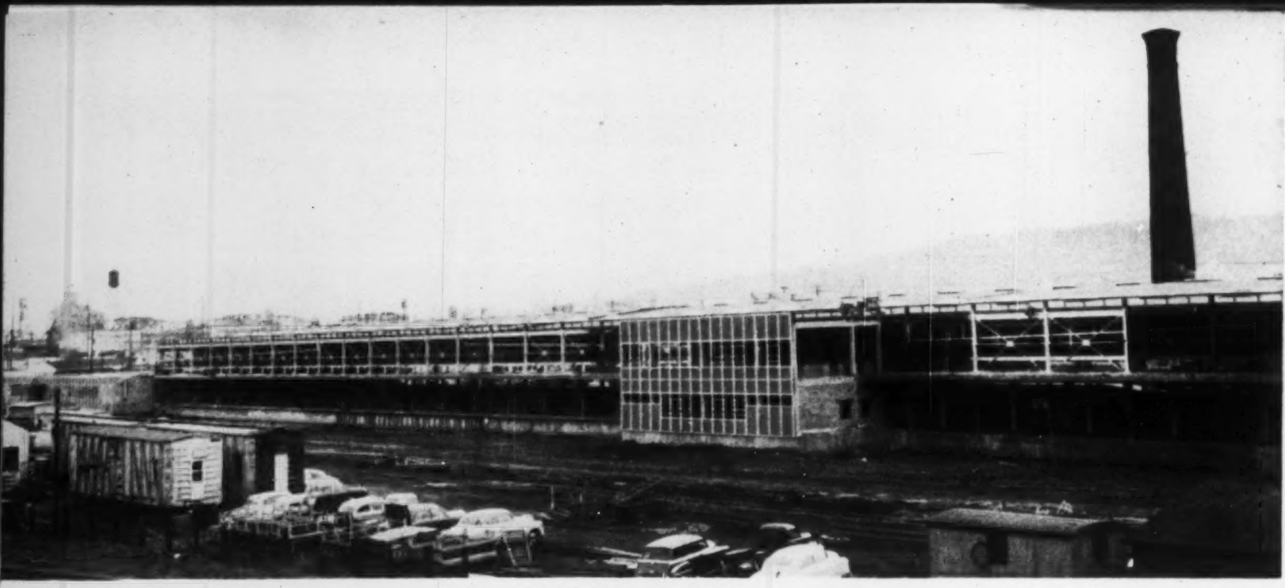


In Portland, this freight terminal will have a 90-car capacity.

Union Pacific Spruces Up With

The Union Pacific Railroad is spending millions of dollars to modernize its freight yards. Included in this program are huge terminal buildings at Portland, Ore., and East Los Angeles, Calif. They expand the capacity of the freight stations and improve efficiency of freight handling substantially.

The new buildings are testimony to UP's preoccupation with the problem of claims for damage to goods in shipment.

Such claims cost American railroads $122 million annually.

The UP has added freight station construction at major terminals to a broad preventive program that includes automated switch yards, intensive employee education and continuous packaging and loading research to minimize damage to shipments.

1. Portland Terminal

The building cost $2 million. It's part of a $7.5-million reconstruction and expansion of the UP Albina terminal. (Other work there included moving 600,000 cu yd of earth, laying 52,100 ft of new track, relocating 239,500 ft of existing track, erecting 20 new buildings and constructing a 110-ft turntable to handle diesel engines.)

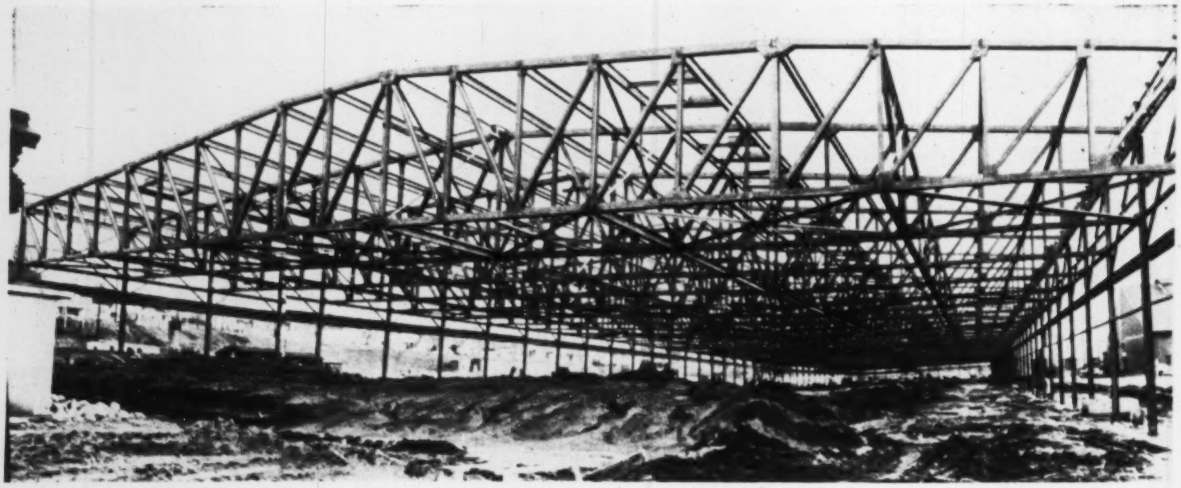
The new freight terminal building is a steel-framed structure 170 ft wide and 947 ft long, with a 162x152-ft attached office section. Capacity is 90 freight cars.

• **Ground replaced**—The building had to be erected on a fill. Foundation studies considered use of piles and replacement of undesirable overburden with selected soils—the new material to be compacted mechanically or by preloading to 95% density. Piles were too expensive, and preloading would have taken too long.

The decision was to replace 30,000 cu yd and compact mechanically. Overburden was removed to a depth of 20 ft and replaced with a selected soil in 8-in. lifts. Hauls from borrow pits were as long as 1½ miles. Sheepsfoot and pneumatic rollers compacted the lifts and sprinkler trucks watered them.

The contractor cast 8-ft 3-in. square concrete footings 22 ft c-c along the sides of the building and tied them together with reinforced concrete grade beams. He then set steel columns on the footings to support the 42 trusses that carry the roof.

The trusses span 168 ft across the



Steel trusses span 168 ft in the Portland station.

In East Los Angeles, this freight station will be slightly smaller.

Two Big Freight Buildings

width of the building. In all, 1,800 tons of structural steel were used.

• Fire protection—The trusses are faced with corrugated-metal fire curtains. The building is also protected by fire sprinklers, and ridge vents controlled by fusible links are located in every bay.

In case of fire, the curtains should keep the hot gases from spreading throughout the structure, and the ridge vents will pop open to vent them to the outside.

• Underfloor conveyor—Handling of shipments will be facilitated by an underfloor conveyor motivated by an endless chain moving at 120 fpm. When a truck is placed on the line, a pin is dropped to engage the chain.

The loading platforms in which the conveyor is housed circle three of the five interior trucks. At the ends of the building it comes down to track level so that cars can be run in and out.

Capacity of the conveyor is 600 trucks per hour.

An electrically operated, retractable bridge was erected at the middle of the building. Spanning three tracks, it will speed movement of men and materials not handled on the underfloor conveyor.

Located outside, but an integral part of the freight station operation, is a gantry crane for handling heavy loads. It has a 65-ft span extending over two tracks, and can handle loads up to 40 tons.

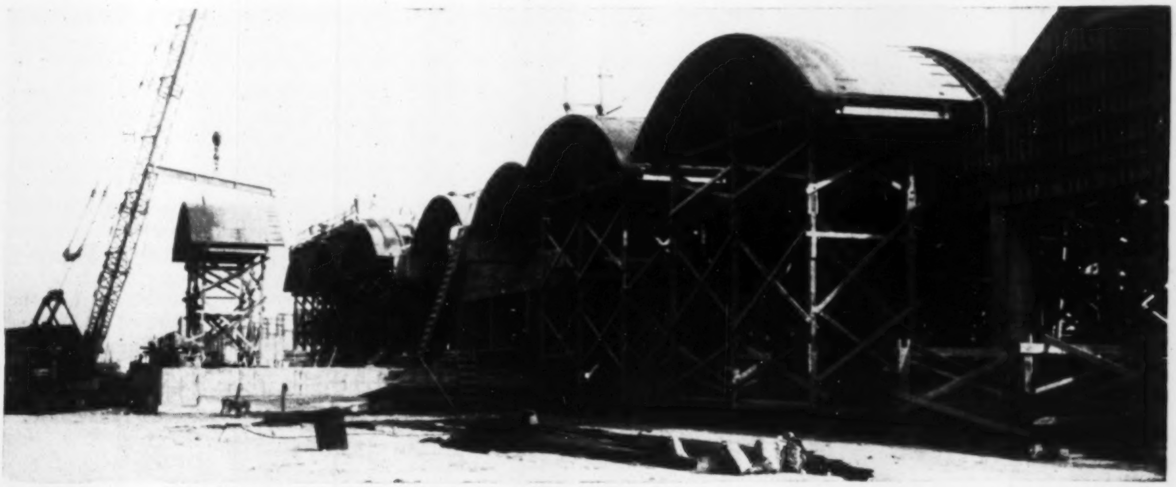
Walls of the freight terminal building are asbestos-protected metal. The office section, which is air conditioned, has masonry walls.

The building was erected by Anderson-Westfall Co., Portland, Ore. Leo A. Daly Co., Omaha, Neb., was the architect-engineer.

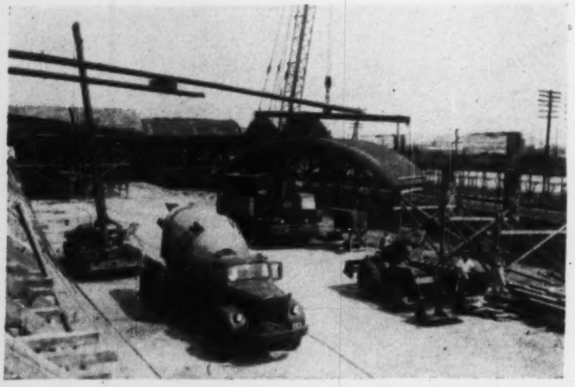
2. East L.A. Terminal

The $2.4-million project that will serve the Los Angeles area consists of the freight station and several attached buildings. These include a 151x127-ft, two-story, glass-enclosed office building, a 135x57-ft, one-story salvage building and a 127x57-ft, one-story block office.

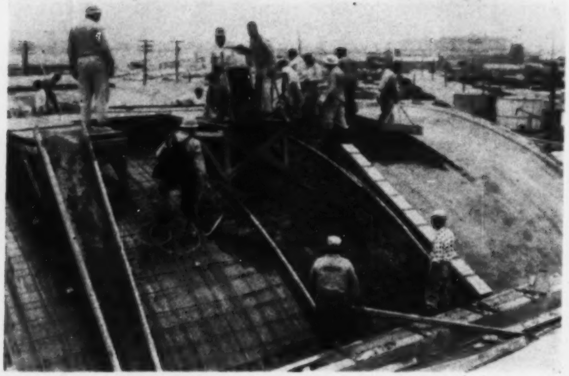
The office building is reinforced against seismic forces with shear walls, while the block office is of reinforced masonry construction. The salvage area



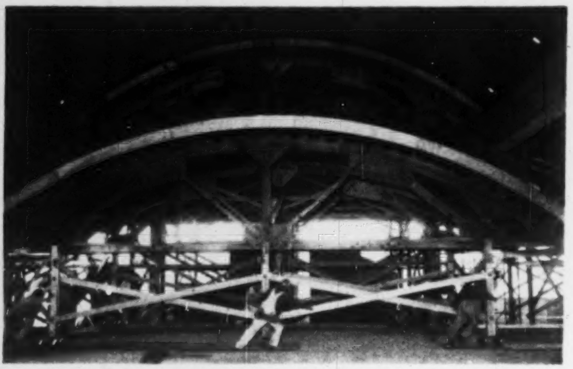
Thin-shell concrete arches roof the Los Angeles terminal.



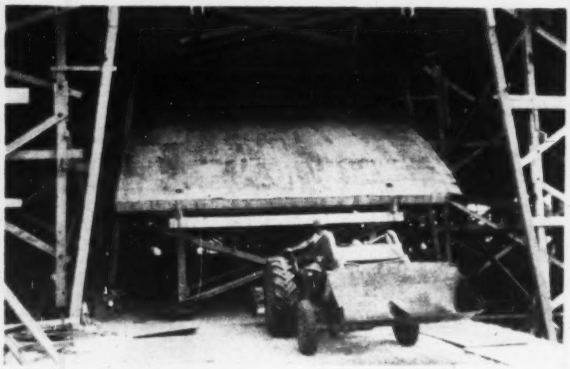
Crane places arch form on falsework then . . .



Arch is concreted after reinforcing is set.



Stripped form is lowered onto dollies and . . .



Rolled to next location by tractor.

is roofed with prestressed double tees.

The main building is 107x1,332 ft. In contrast to the steel-framed Portland terminal, this structure has a roof of 30 concrete barrel arches supported on concrete columns. Local considerations governed the selection of this design.

• **Thin-shell concrete**—The arches have a span of 44 ft parallel to the longitudinal axis of the building. In the transverse direction, they extend the full width of the buildings, eliminating the need for interior columns. They cantilever another 10 ft beyond one side to provide a protective overhang for trucks at the loading dock. Hence, the overall length of the arches is 117 ft.

Curved to a 31-ft radius, each arch has a rise of 12 ft 3 in. Thickness is 4 in.

The longitudinal edges of each pair of arches rest on a concrete beam that spans the width of the building. The beams, in turn, are carried by columns, which are founded on 15-ft deep, bell-bottom concrete caissons. The arch thrust in each bay is resisted by 8-in. heavily reinforced diaphragms between the columns.

On the loading side of the building, two 20-ft wide doors fill the space spanned by each arch. At the rear, the spaces between columns are occupied by precast concrete wall panels.

In constructing the building, the contractor cast the columns and spandrel beams first, leaving dowels protruding for embedment in the 24x45-in. transverse beams. These beams, the arches and the diaphragms were then cast integrally.

The juncture of the arches was curved to form a gutter, which drains water to the rear.

• **Prefabricated forms**—Arch forms were supported on timber trusses. The forms were prefabricated in 18-ft-long sections, with two trusses 13 ft apart to carry stringers and curved plywood forms. Enough sections were made to form six bays, thus allowing five uses per unit. Seven sections were needed for each arch.

Cranes set the prefabricated units atop wood falsework bents already in position.

The sling for lifting the units was tied to the trusses after passing through square holes left along the edges of the form for that purpose.

Reinforcing for the arches consisted principally of No. 4 bars, longitudinally and transversely. Diagonal bars were laid at the end of each arch. About 450 tons of reinforcing steel were required for the 30 arches, beams and diaphragms.

Supplied with truck-mixed concrete (3,000-psi strength), a crew of 40 men placed the concrete for six arches in about two days. A crane raised the concrete from the mixers to the forms for final placement by buggy.

The men used a curved tubular screed to smooth off the concrete, which was then given a float finish.

• **Fast stripping**—Small holes were left in the arch shell just above the gutter to facilitate form stripping. Winches were set near them on the arches, and winch cables dropped through the openings, were tied to the form trusses. As soon as the falsework bents were removed, the men lowered the forms with the winches.

At grade, each form section was received by a wood frame on dollies. A crew pushed it by hand to an open aisle, where steel beams supported the forms above. There, a tractor took over to pull it to the next position for placement by a crane.

The contractor was able to strip the forms for one arch in about two hours, re-erect them in three hours.

Leo A. Daly Co. was architect-engineer for the East Los Angeles project. Diversified Builders, Paramount, Calif., was the general contractor.

The program is being carried out under the direction of J. A. Bunjer, UP chief engineer.

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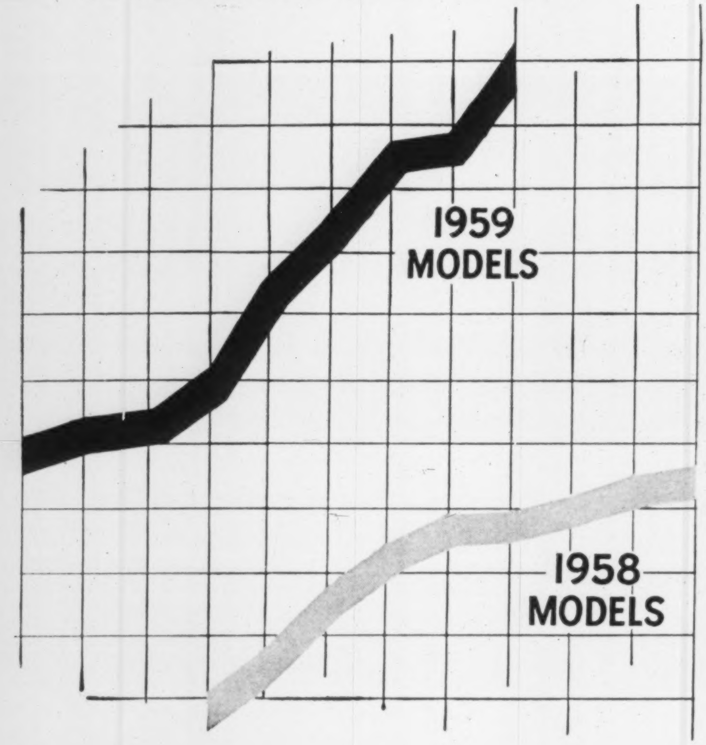
The BIG SUCCESS

1959 FORD SUPER DUTY TRUCK SALES MORE THAN DOUBLE THOSE OF LAST YEAR



1960 FORD SUPER DUTIES

SKYROCKETING SALES OFFER ADDED TESTIMONY TO THE TOUGHNESS AND RELIABILITY OF FORD "BIG V'S"— *NOW THEY'RE MORE DURABLE, MORE FLEXIBLE THAN EVER!*

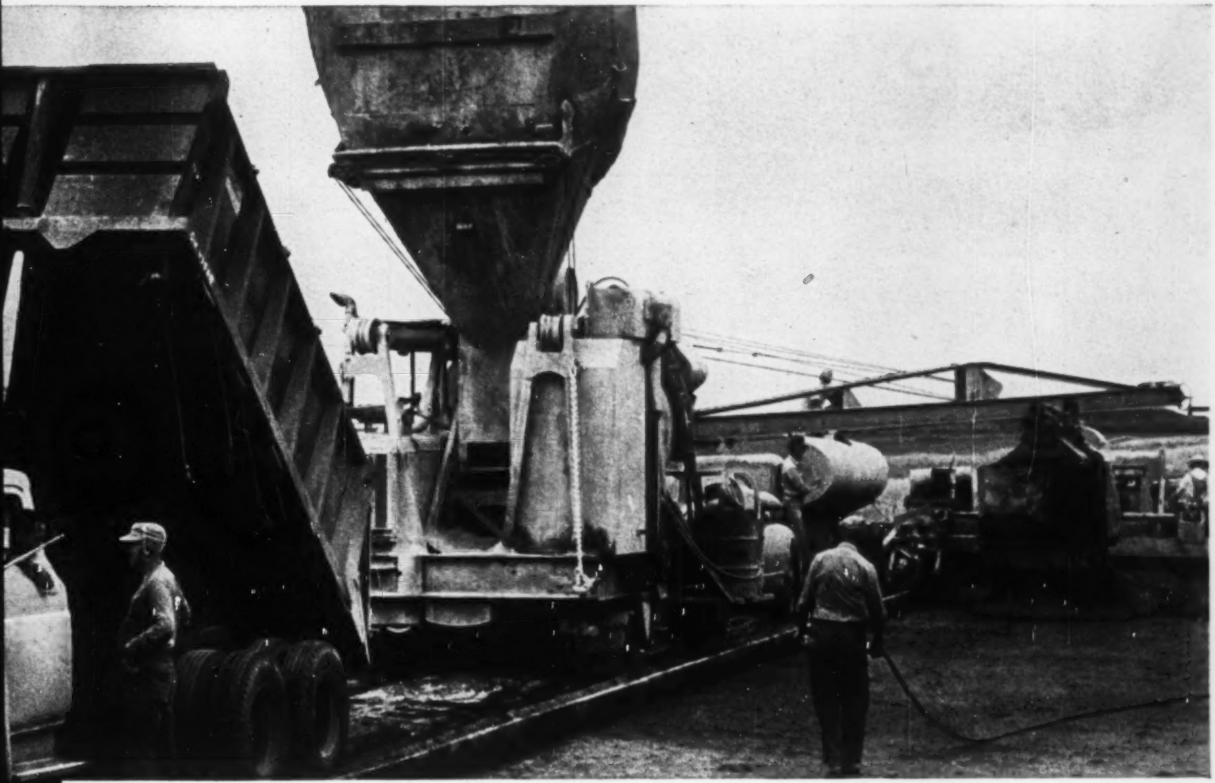
Ford's increase in sales of Super Duty Trucks, while impressive in itself, by no means tells the whole story. Over half of the 1959 unit sales were the result of repeat orders from operators like Trucking Contractors, Inc., who bought because the Ford "Big V" provided the kind of performance and durability needed for their work.

And for 1960, the Ford Super Duties offer additional refinements designed to provide an even greater degree of dependability. Bigger optional axles and increased GVW's permit greater payloads and more profitable operation. Automatic radiator shutters to keep the engine temperatures within the most efficient operating range, submerged-type electric fuel pump to prevent vapor lock, and redesigned wiring for longer, more dependable operation are but a few of the improvements which add to the performance and durability of these units.

The changes offered for 1960 were tested and evaluated by America's foremost independent automotive research organization. The certified results of the studies by this impartial firm (name available on request) provide proof that Ford's Super Duty Trucks are even more dependable.

- **Certified Durability through closer temperature control!** Independent research engineers certify that Ford's thermostatically controlled radiator shutters kept water temperature between 168° and 188° in severe mountain grade operation. The test truck with shutters blocked open

# of the Big Truck Field



"Tried 8 in '58—bought 20 more in 1959," says Curtis E. Brost, President, Trucking Contractors, Inc. "In 1958 we bought 8 Ford T-850's with lightweight chassis options and specially built 5-batch bodies which gave us a full extra batch per truck. A 5-batch load is a real strain on the truck when you consider we're 'running the ditches' on this highway paving job in North Dakota. These T-850's worked out so well that we ordered 20 more in '59. Our Ford Tandems with the 477 engine give us good mileage and the drivers are real happy with them. It's a rough go on trucks with soft footing and dust so bad we have to drive with headlights on. Despite such operating conditions, downtime has been negligible and these '477' Fords have given us less trouble than other trucks we have operated."

with Certified Durability

under same operating conditions had a temperature range from 102° to 181°. The temperature variation of only 20° with shutters means less expansion and contraction in engine block and cylinder heads. Higher temperatures with radiator shutters permit leaner fuel-air mixtures with less possibility of raw gas washing down cylinder walls. Warm oil circulates more freely, reducing internal friction. All these factors contribute to longer engine life.

- **Certified Dependability with longer-lived electrical system!** Ford's '60 improved wiring harness and the 1959 wiring harness were subjected to shaker table tests plus constant exposure to oil and water vapors and temperatures of 200°. Certified results prove that the greater resistance to deterioration by heat, oil, water and abrasion obtained with the 1960 wiring harness more than doubles wiring harness life.

- **Certified Reliability with Ford's submerged-type electric fuel pump!** Dynamometer tests of engines with submerged-type electric fuel pump and conventional mechanical type showed that vapor lock was nonexistent with Ford's electric pumps at temperatures up to 200°, whereas incipient vapor lock with mechanical pump resulted in a power loss of 9% at an underhood temperature of 200°.

Test results like these plus the experience of satisfied users are important but that is not all. For 1960, the Super Duty line has been broadened to provide even more flexibility in power train options. Get the facts from your Ford Dealer!

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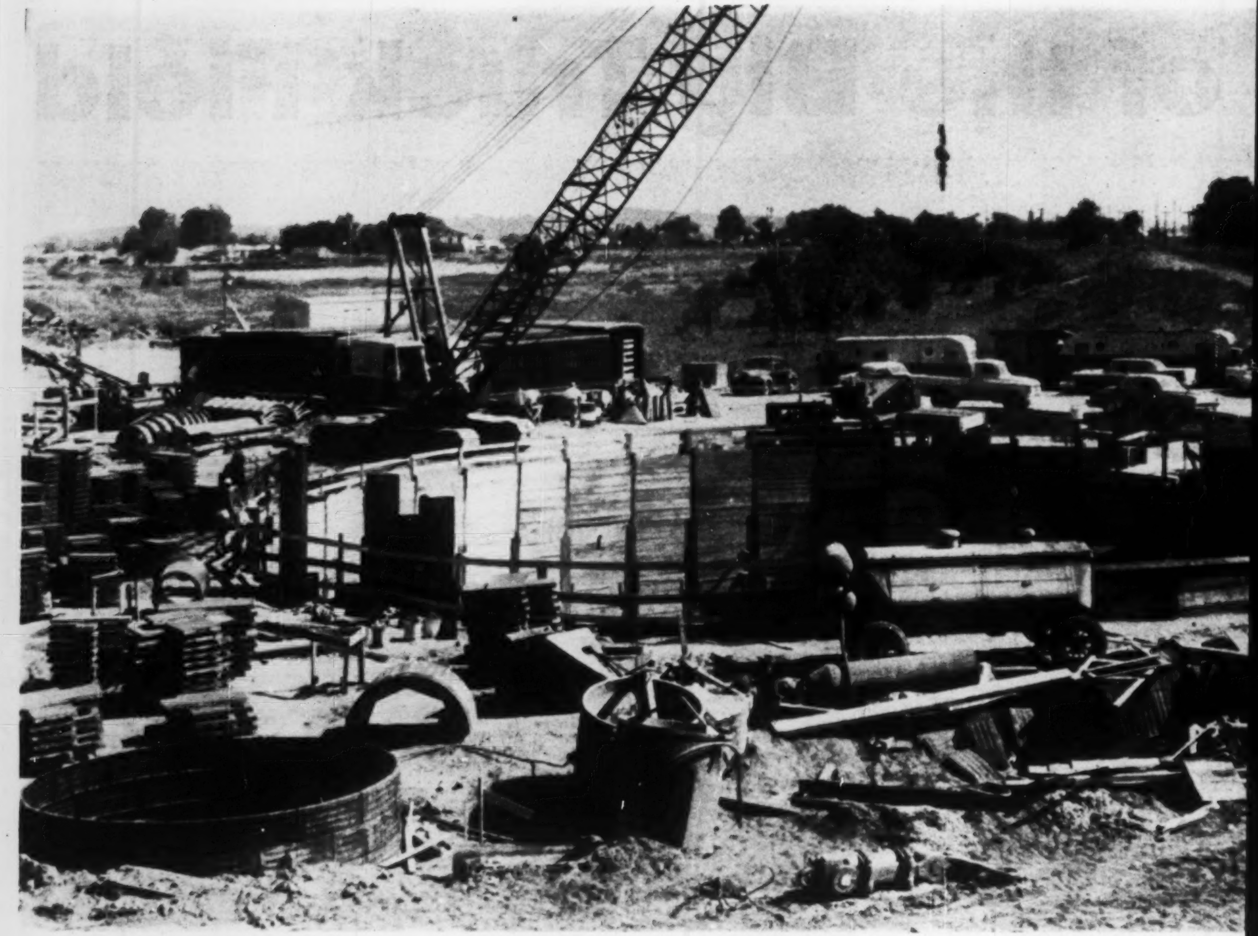


Pit dug for an underground pumping station features an innovation:

Concrete Wales Brace Circular

The contractor on a new sewage pumping station in Louisville has successfully used cast-in-place reinforced concrete wales to brace a cofferdam.

The circular cofferdam had to provide an inside clear space 101 ft in diameter to contain the structure housing the sewage pumps, motors and other operating equipment (see sketch on p. 38).

And it was 64 ft from the top of the ground to the bottom of the reinforced concrete structure.

The cofferdam is made up of six of the concrete circular wales, interlocking steel sheetpiling, vertical steel soldier beams, and horizontal timber lagging to hold back the sandy soil. The pumping station structure is being built over and around the concrete wales, which are 3 ft wide by 2 ft thick.

First operation was driving steel sheetpiling next to an existing reinforced concrete sewer that could not be disturbed. Then the 65-ft-long H-beam soldier beams were driven—all to a penetration of about 12 ft below the bottom of the pump-room slab. The sheetpiling and soldier beams were all driven before any excavation inside the cofferdam started.

They were driven with a heavy single-acting hammer handled by a crane with a 100-ft boom. Compressed air was furnished by a 600-cfm rotary compressor and a 500-cfm piston-type compressor.

The soldier beams are spaced 7 ft c-c around a 101-ft-dia circle.

After the soldier beams and sheetpiling had been driven, excavation began with a 2-cu-yd clamshell on the 100-ft boom of the crane. Assisting the clamshell was a small tractor shovel that carried material from the far side of the hole to within reach.

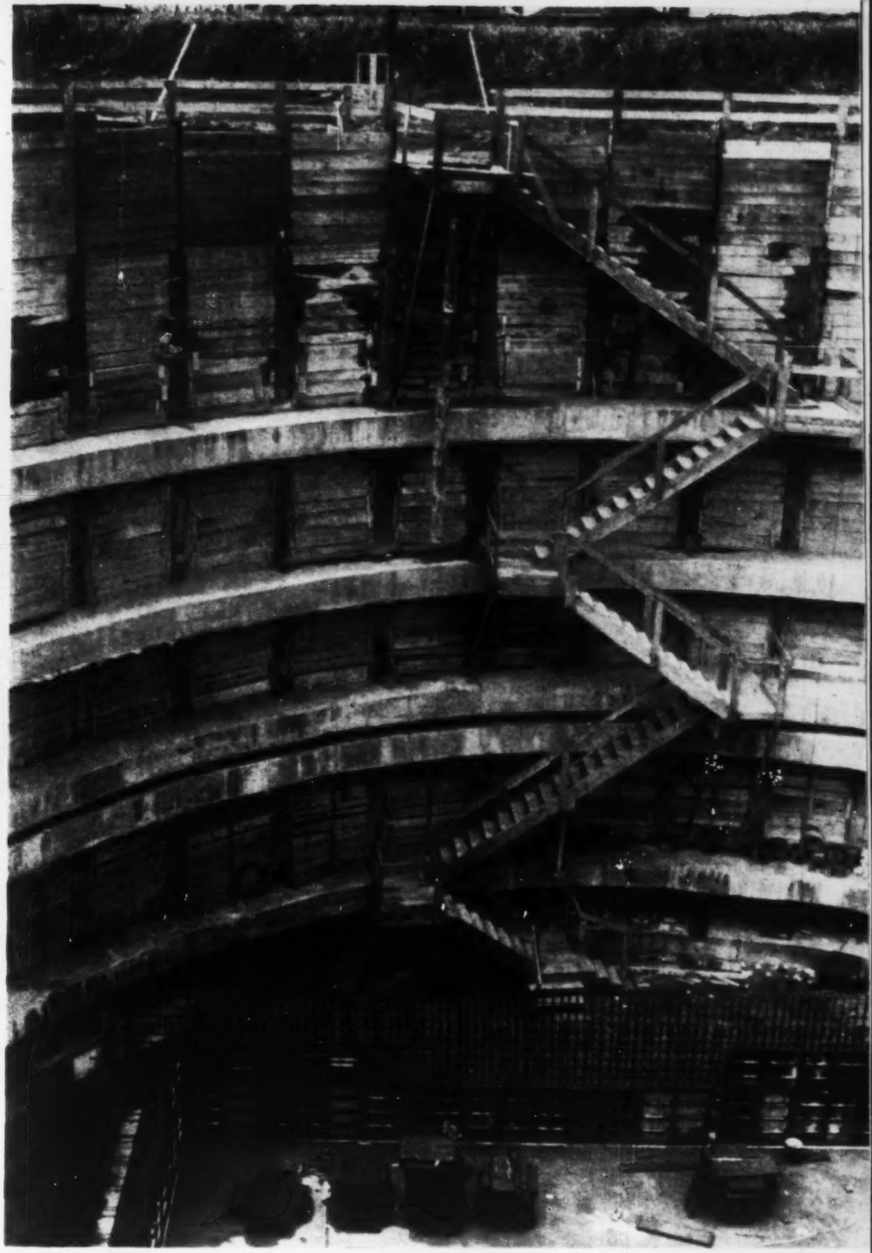
As excavation proceeded, the timber lagging was sawed to 6.5-ft lengths and inserted against the face of the cut.

The thickness of the lagging was increased as the hole got deeper. To begin with, 3-in.-thick lagging was used around the top 20 ft of hole. This was followed by 10 ft of 4-in. lagging, then 6-in.-thick lagging to the bottom of the hole.

When excavation was down to el 423, which is about 17 ft below ground level, the first concrete ring was cast in place on the ground at that level. Ready-mix concrete was used. It had a specified minimum compressive strength of 3,000 psi at 7 days.

The inside face of the 2-ft-thick ring was formed with 5 x 2-ft prefabricated panel forms. Each ring contains about 75 cu yd of concrete. It is reinforced with four No. 6 bars in both the 2 ft deep inside and outside faces, and No. 4 bar stirrups at 6 ft c-c.

Two layers of 90-lb felt were placed between the circular concrete wales and the outer flange of the soldier beams to prevent bond between wales and beams.



BIG RIBS have a cross section 3 ft wide by 2 ft high. They were cast in place on the ground as excavators reached their levels.

Cofferdam

The concrete wales are held in position vertically by heavy reinforcing bars placed at a 45 deg angle. The steel bars are embedded in the rib concrete and welded to alternate soldier beams.

When two of these bars pulled loose in the third ring from the top, which is 36 ft below ground line, the contractor added a fourth, "insurance" ring just below it (see photo).

After the concrete in the first circular wale had attained a compressive strength of 2,500 psi excavation continued for another 10 ft. The second wale was constructed at that point.

The bottoms of the other four wales are located about 36 ft, 39 ft, 50 ft and 55 ft, respectively, below ground level El. 440. The bottom of the pump room floor slab is 59 ft below ground.

The station has a design capacity of 104 million gallons per day (mgd). It will pump sewage, industrial wastes and diluted stormwater flows from the existing Southwestern Outfall Sewer to the new Fort Southworth sewage treatment plant about a mile away.

When the normal sanitary flow is diluted in excess of 104 mgd due to stormwater in the combined system, the station will be shut down. In that case the entire diluted flow will be discharged through the existing sewer to the Ohio River below Louisville. This mammoth inverted egg-shaped sewer measures 18 ft 4 in. horizontally by 27 ft 6 in. vertically.

High water from the river could surcharge the sewer during construction of the pumping plant. Consequently, the designers—Metcalf & Eddy—decided not to allow the earth load to be removed over or around the existing sewer.

To further safeguard the existing sewer and minimize unbalanced loads on it, the adjacent interlocking steel sheetpiling for the pumping station excavation was required and will be left in place.

The soldier beams protecting the remainder of the 101-ft-dia, 64-ft-deep hole will be removed, however, when the backfill is completed around the reinforced concrete pumping station structure.

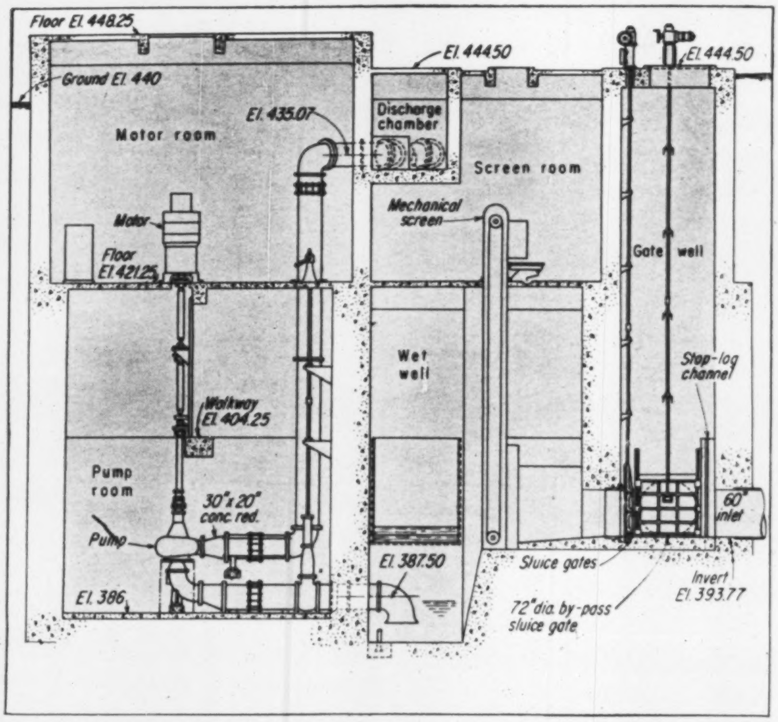
As the backfilling proceeds upward, the concrete wales on each side of the sheetpiling left in place are severed. This is done so that in pulling the soldier beams, no strain will be put on the sheetpiling left in place or the pump station structure. With the exception of the soldier beams, all other materials—such as the concrete wales, timber and steelpiling—will remain in place in the backfill.

Another feature of the project is a 6.5-ft-high barrier dam constructed in the existing sewer.

Its chief purpose is to divert sanitary sewage—plus diluted sewage up to a flow of 104 mgd—to the screen channels and wet well of the new pump station. After the diluted flow becomes greater than 104 mgd, it will spill over the barrier dam and discharge into the river.

The pumping station will contain four sewage pumps. Two are variable-speed pumps with a capacity of 11,800 gallons per minute. The other two are 24,300-gpm constant-speed pumps. Pumps, gates and traveling screens may be operated either automatically or manually.

There are three sluice gates in the pumping station. Two are 84x60 in. They will control the flow of sewage from the existing sewer into the plant. The other sluice gate, which is 72 in. in diameter, is part of the bypass facilities for excessive stormwater, or for by-passing all flow if it ever becomes necessary to shut the plant down.



WHAT EXCAVATION WAS FOR: Underground pumping station will lift sewage nearly 50 ft and pump it to new treatment palnt a mile away.

A total of 59,890 sq ft of concrete forming will be required for the entire job, which totals 4,140 cu yd of concrete. It is being done with prefabricated panel forms.

The largest area to be formed for a single placement of concrete was nearly 13,000 sq ft. For this, the contractor used 7,000 sq ft of panel forms that he owns, plus 6,000 sq ft of rented forms.

Concrete from transit-mix trucks is placed directly in the forms with four 2-cu-yd buckets handled by two cranes. Each crane handles two buckets. While one is being lowered into the forms, the other is being charged.

Some of the concrete placements involved large quantities for this type of construction. Some walls are 4 ft thick, while the base slab is 5 ft thick. Largest single placement was 810 cu yd in 14 hours.

Cutting into the existing sewer adjacent to the new pumping station required careful planning and execution. The problem was to cut two holes in it for installation of the two 60-in-dia steel inlet pipes joining the sewer and the pumping station.

Here's how it was done:

Workmen took 6x6-in. timbers in through a manhole in the old sewer about 50 ft from the sewer-tapping location and laid them across the sewer about 5 ft above the invert. Timber planking was then laid on these 6x6's from the manhole to a few feet past the location of the 60-in. inlet pipes. This provided a working platform above low-flows in the big sewer.

Steel plates 8 ft long, 20 in. wide and ¼ in. thick were installed on the inner face of sewer covering each area in which the 6-ft-dia cuts were to be made through the sewer wall.

The plates were curved to fit the inner surface of the sewer. Each 20-in.-wide strip was reinforced along its edges —parallel to the longitudinal axis of the sewer—with 3x3x3⅜-in. angles. The curved plate sections were bolted together with ⅝-in. bolts at 12 in. c-c, through these angles. Rubber gaskets were inserted between each pair of angles.

The plate sections were mounted 1 in. from the inside face of the sewer and the intervening space was grouted to make the entire assembly watertight. The assemblies were held firmly in place by 6-in. steel beams anchored to the sewer wall.

When both assemblies were in place, two jumbo drills were used, together with paving breakers, to cut out two holes.

The holes received the 60-in. steel pipes and 6-in.-thick concrete collars which fastened the pipes to the old sewer. The exterior surface of the curved plates served as the forms for the ends of the concrete collars at their junction with the old sewer.

After the two 60-in.-dia inlets have been completely installed, the curved plates and timber work platform will be removed from the sewer.

A third cut will be made in the big sewer for the 72-in.-dia reinforced concrete pipe bypass.

The contractor used four semitrailers for his shops and storage. Three are spotted parallel, a few feet apart. By roofing and enclosing the two intervening areas, he has five separate shop and storage areas in one location. Both the contractor and resident engineer field headquarters are air conditioned office trailers.

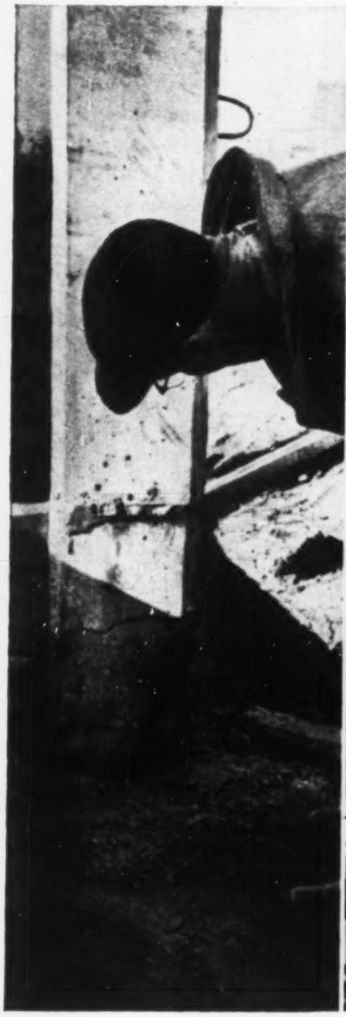
W. L. Hailey & Co., Nashville, Tenn. holds a $938,000 contract for the complete pumping station, including installed equipment.

James I. Davis is construction superintendent. Lewis M. Steele and William F. Bates designed the circular cofferdam system. William Swift is field office manager. John R. Lamb is carpenter foreman, and Kenneth H. Beeler is concrete foreman.

Robert W. Muther is project engineer for Metcalf & Eddy, Boston, designers and consultants on the project. Harold Creighton is resident engineer.

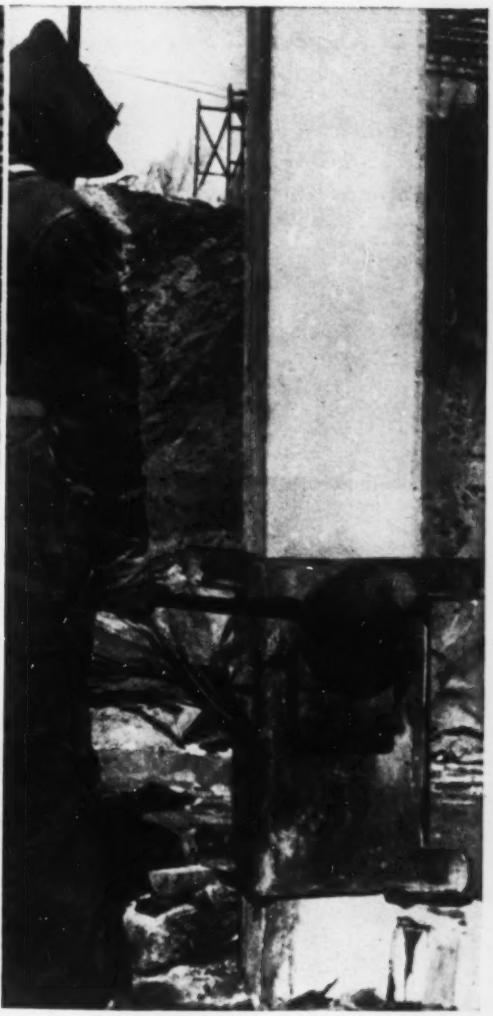
The pumping station is being built for the Louisville and Jefferson County Metropolitan Sewer District, for which Morris Forman is engineering consultant.

1. Shown here is a prestressed concrete pile that was driven to just above ground and an additional section spliced on. A horizontal load was applied to the top of the new section in a manner that created maximum moment at the splice. Failure occurred not at the splice but below it.



2. Workman is shown lining up pile to be spliced onto one already driven into ground. Note metal jig around top of driven pile with side vents for pouring quick-setting Florok's plasticized cement. Everything needed is at job site.

3. After addition has been set in place and properly aligned, heated Florok's cement (it melts to a light fluid consistency between 265 F and 290 F) is poured into side vents of metal jig. In fifteen minutes jig can be removed and work resumed.



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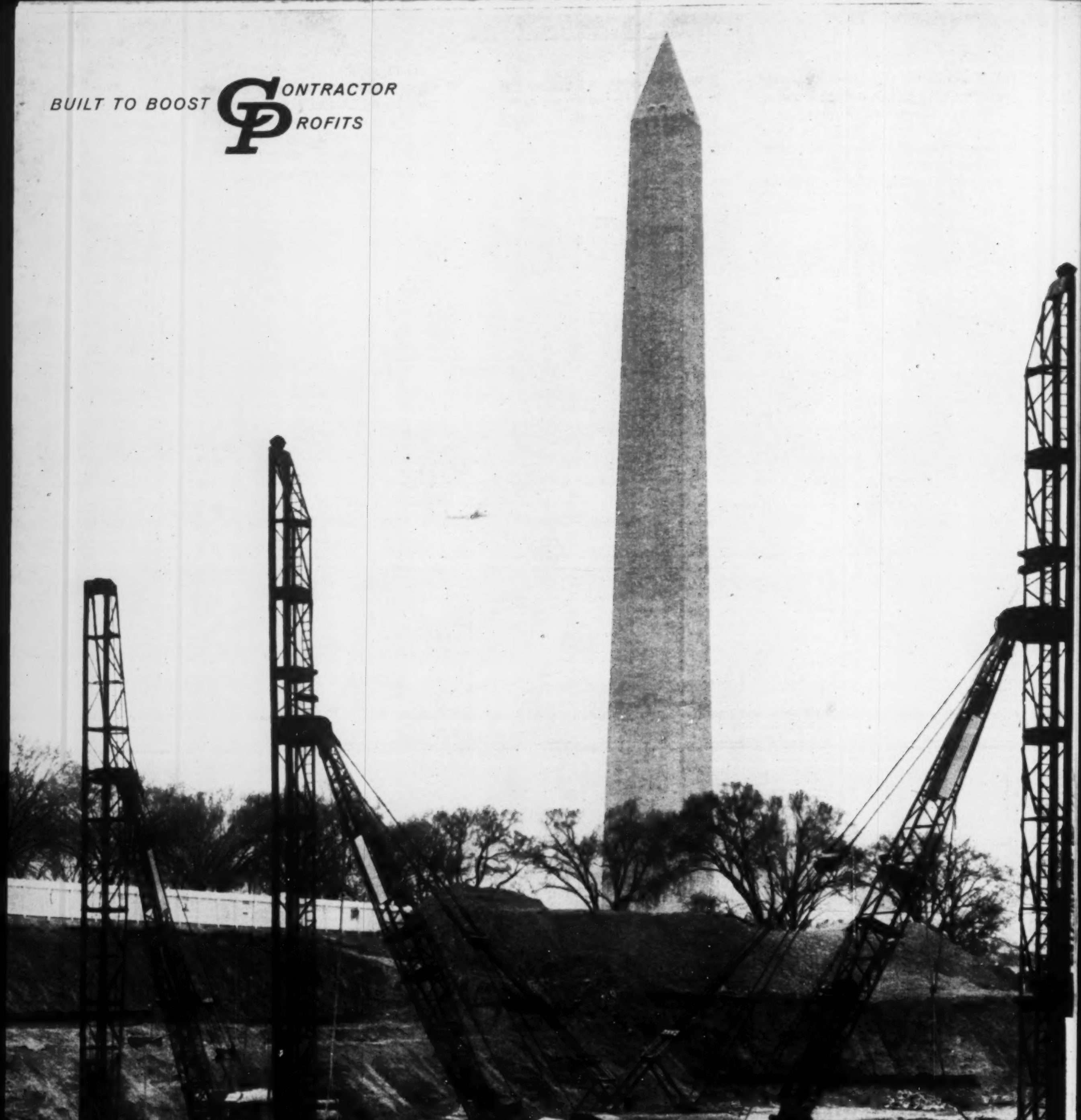
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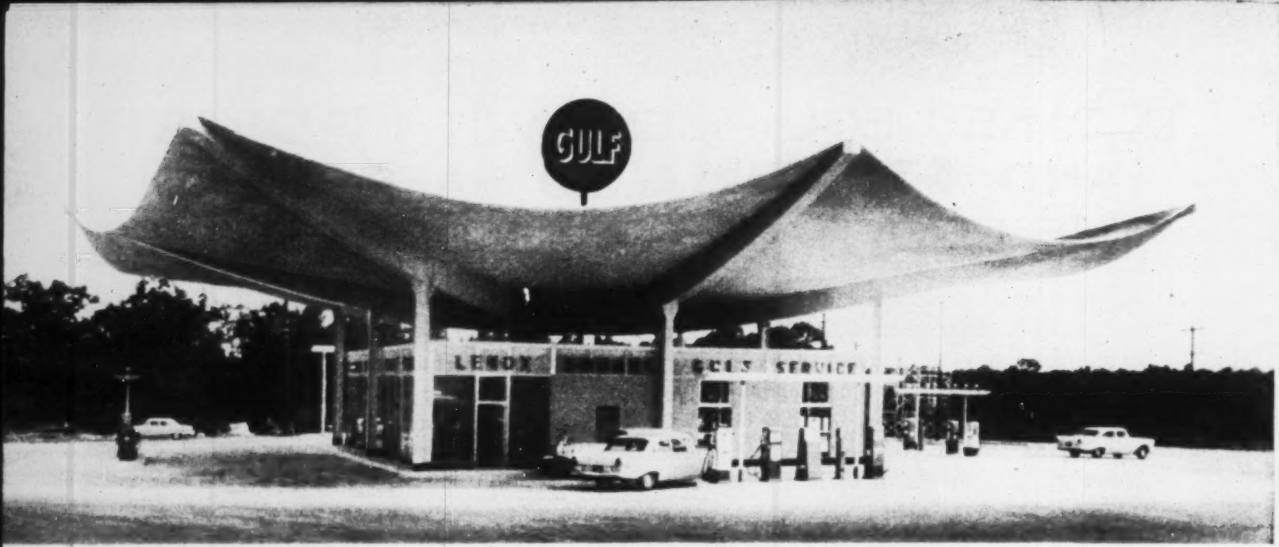
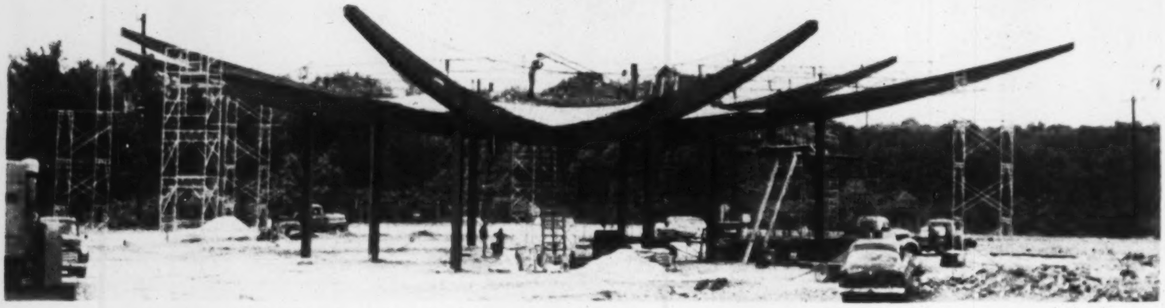


Finished: Covering this service station is 16,500 sq ft of concrete catenary shells.

Half-finished: The station went up in the shade after crews finished the canopy.



Start: From a simple octagonal center joint, steel box girders rise 13 ft over columns.

First Concrete Canopy, Then

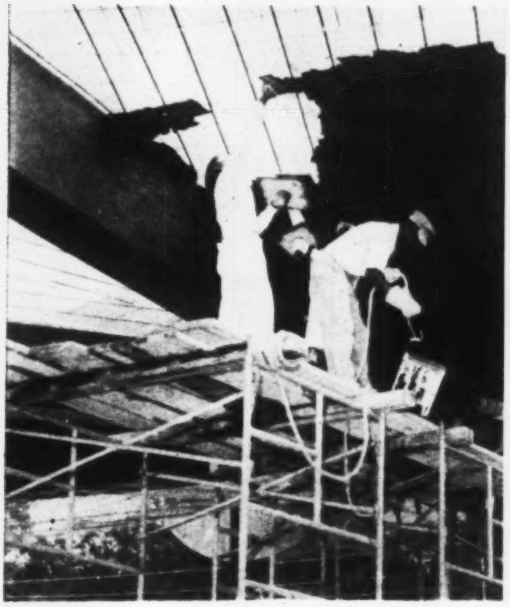
The roof of this service station in Atlanta is a series of thin-shell concrete catenaries forming an octagon. The contractor sprayed concrete on metal lath to build it.

The 2¼-in.-thick catenaries required 275 tons of concrete, reinforced and shaped with more than 10 tons of steel rods and wire lath. This reinforcing is draped over eight tapered, curved steel box girders to form a 16,500-sq-ft cover for the station. Four girders are 71 ft long, four 61 ft long. All are supported on 20-ft high 14 WF 78 columns arranged in a 56-ft square. Long box-girders run out over the corner columns, short ones rest on the mid-side columns.

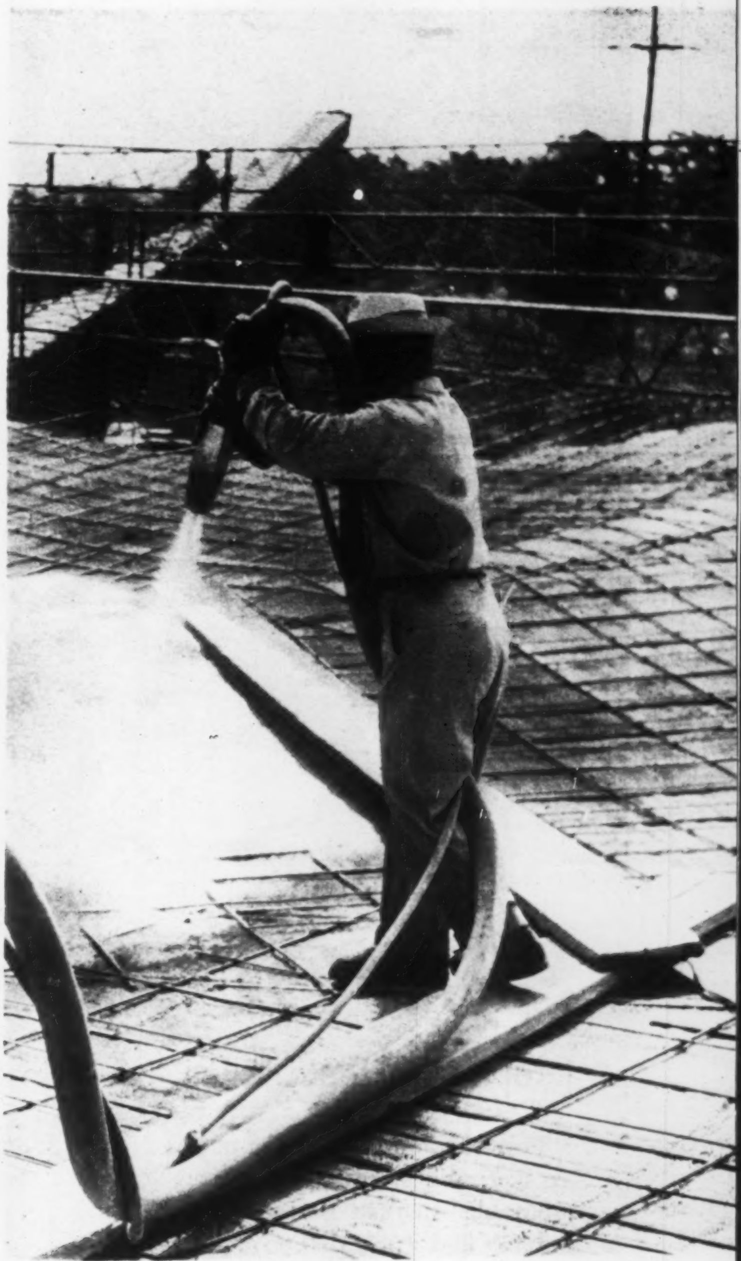
The box girders are connected at the center to an octagonal steel compression ring. From here, they rise 13 ft to their outer ends.

Reinforcing steel for the canopy had to be draped from the girders with precisely the right amount of sag. The contractor strung piano-wire guides from the top of the compression ring to scaffolds set between the outer ends of

Wire lath hangs from reinforcing bars.



Mortar coat seals lath from below.



Crews sprayed concrete to finish canopy.

Station

the girders. Outer ends of the wires were tied to the scaffolds 6½ ft above the level of the compression ring.

Using the wire as a guide for correct sag, workmen welded No. 3 bars from girder to girder, then crossed them with No. 2 bars, 10 in. c-c.

Galvanized wire lath was wired to ¾-in.-deep spacer channels attached to the underside of the reinforcing bars. Under the lath, plasterers hand-troweled an initial coat of ¼-in.-thick mortar to prevent pneumatically applied concrete from blowing through from above.

Concrete workers spent four days spraying the canopy. After they finished, building crews moved into the shade to erect the rest of the station.

The building itself is 54 ft square, centered under the canopy and structurally independent from it. Concrete block walls stand 13½ ft high, leaving 2½ ft clearance between the top of the station building and the canopy.

Total cost came to $76,000. The canopy alone cost $36,000. Lenox Sq., Inc., the owners, have leased the shopping center service station to Gulf Oil Co. Architects for the station were Toombs, Amisano & Wells, Atlanta. Demetrios A. Polychrone of the Georgia Institute of Technology was the structural engineer. Lenox Contracting and Engineering Co., Atlanta, was the general contractor.

steel pipe

keeps the steel blades flying

This blossoming business of community ice skating has grown into a sizeable—and profitable—market. Best assurance of profitability for the installation of an ice-making system is the elimination of costly maintenance and repairs. It's a job that calls for strong, durable *steel pipe.*

With dependable *steel pipe* there's no danger of damaging the refrigerant lines, no bending and sagging. *Steel pipe* has *proved* its place in many applications like this.

Whenever there's a new application, it pays to stay with dependable, time-tested materials. The skating rink is just another example of the many kinds of jobs that *steel pipe* can do *best.*

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
- Strength unexcelled for safety
- Formable—bends readily
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- Threads smoothly, cleanly
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New Products

Ford Line Has 400-Plus Models

Ford's 1960 line of trucks includes over 200 models in the heavy and extra-heavy duty field and over 200 in the light and medium field.

The first has maximum gross vehicle weights ranging from 22,000 to 41,000 lb and gross combination weight for tractor-trailer applications from 35,000 to 75,000 lb. The light and medium line ranges from 4,600 to 21,000 lb.

Conventional, tilt-cab and tandem models in the heavy, extra-heavy group are fitted from seven new engines, including three "Super Duty" V-8's. Three new front axles and six rear axles, in either single or two speed versions, add flexibility and versatility.

Ford's 477-cu-in. engine is now available for the 950 and 1100 series trucks, in addition to the 1000 series. Its largest engine, the 534 cu in., is also available for the 1000 series trucks.

A choice of six pick-up bodies in 6½-, 8- and 9-ft lengths—with capacities up to 80 cu ft—is offered in the light duty models. The F-100 and F-250 models have a locking-type differential for maximum traction on ice, snow, mud, sand or loose gravel.

Power for the light and medium duty trucks includes the 223 cu in. six-cylinder economy engine and the 292 cu in. V-8. FORD DIV., FORD MOTOR CO., DEARBORN, MICH.

Pick-up Truck Turns Into 'Home'

The back of a pick-up truck serves as the mount for a coach that can sleep three in the field. Manufacturer says it can be installed in 15 minutes.

The coaches, which come in three models, are made of wood, covered with aluminum and painted. Interiors include galley with water system and icebox, and a dining area that converts into sleeping arrangements. COONS CUSTOM COACH MFG. CO., OSWEGO, KAN.

(New Products continued p. 46)

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Helps Add Years of Service Life to Underground Lines

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You can depend on TAPECOAT for protecting pipe, pipe joints, fittings, couplings, tanks, conduit, cable, splices, insulated lines, tie rods or wherever severe corrosive or abrasive conditions must be overcome.

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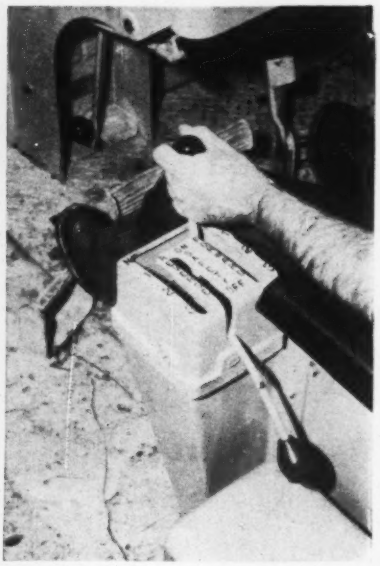

One-Lever Power Shift Put on Caterpillars

Power shift transmissions for the Caterpillar D8 and D9 tractors are designed to provide gear shifting without interruption of power and momentum.

One range-selection lever takes the place of the flywheel clutch lever, gear selection lever and forward-reverse lever.

The machines can be shifted on the move under full load, then instantly reversed to a high return speed to begin another work cycle.

The new transmission also allows the operator to shift down quickly on an increasing load, then, without losing speed or power, shift up to optimum load speed in drifting to the fill.

A further advantage cited is that the power shift eliminates the tendency for operators to stay in one gear range rather than go through the normal shifting procedure in mid-pass.

A safety lever on the selector lever pedestal locks the selector in neutral. There is also an hydraulic safety system that automatically shifts the transmission into neutral when the engine is stopped.

The tractors are equipped with a "power-tailoring" arrangement in which a planetary gear set, driven integrally by the engine flywheel, transmits one-third of the engine torque directly to the transmission input shaft, and the remaining engine torque through the torque converter.

This allows the tractor the impact force and power of a direct drive engine and the adjustment in travel speed to load of a torque converter. Horsepower for D8 is 235, for D9 it's 335. CATERPILLAR TRACTOR CO., PEORIA, ILL.

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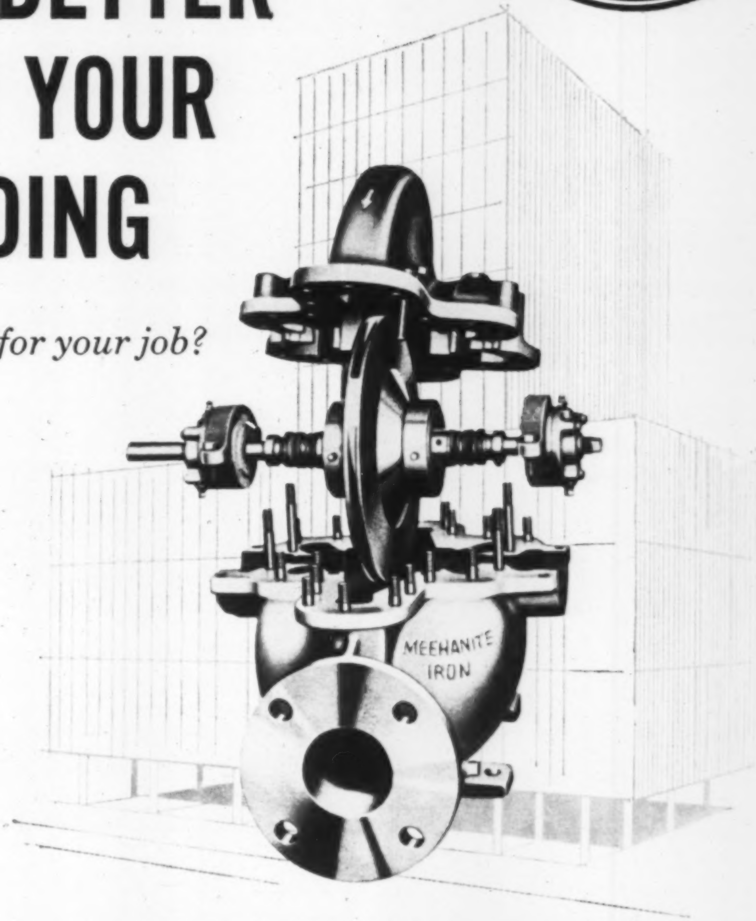

Fast, Easy Installation—Peerless AquaLine pumps install quickly in new or existing systems. No special tools are required. Take it out of the package and put it to work.

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Immediate Availability—All sizes of pumps and parts are stocked for rapid delivery. You get the pump you want when you need it—ready to unpack and install.

Low in Cost, High in Quality—Peerless AquaLine pumps are engineered with the same high-quality traditionally found only in more expensive units. Yet this pump is priced right. Get the facts. Send for Bulletin B-2100 today.

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AquaLine Characteristics:

Sizes: to 8 inches **Capacities: to 2600 gpm**

Heads: to 280 feet **Temperatures: to 250° F**

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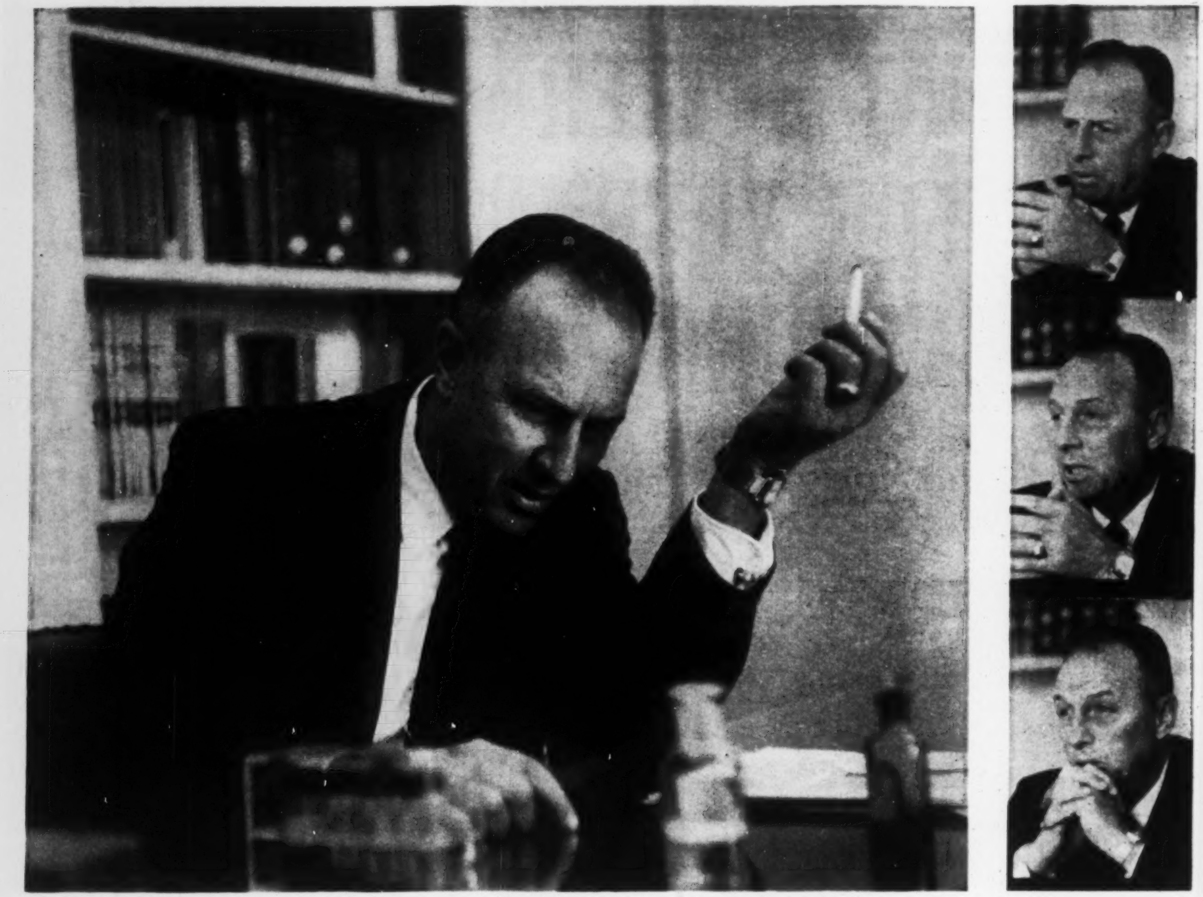

Mark Hollis: "We don't know the real effects of water and air pollution."

Waging War Against Pollution

The "age of chemistry" to the average man means wonderful new synthetic suits, plastic squeeze bottles and handy detergents for the family washing machine. To Mark D. Hollis, chief engineer of the Public Health Service, it means problems.

New detergents mean foamy rivers. Smokestacks belching fumes mean eye-watering smogs. Dirty water and dirty air mean a growing health problem that is sometimes hard to define and even harder to combat.

Fifty years ago, when the main public health program was epidemics, it was not hard to muster public support behind disease eradication. Today the threat is more subtle, more gradual, but just as pernicious.

Mr. Hollis' job is laying out a program to combat the ill effects of modern scientific development on the water we drink, the food we eat and the air we breathe.

It's a job he was literally born to. He was just two years old when his father, a public health doctor, carted him along to Hong Kong on a health mission. Ever since, public health has been his life. He is now in his 27th year of federal service.

Mr. Hollis has recently been promoted out of the operating level to a spot where he can spend more time planning programs for the future, working with state sanitary engineers, and university and research groups, developing career manpower, and addressing meetings of professional groups. This fall he has 42 speaking engagements.

And next week he'll become president of the 10,000-member Federation of Sewage and Industrial Wastes Associations. Mr. Hollis has long been an influential member.

As Assistant Surgeon General and Associate Chief of the Bureau of State Services, he has charge of the work of 465 engineering officers of the Public Health Service. The day-to-day operations he leaves to his top aides like Frank Butrico, Chief of Engineering Resources, and the chiefs of the divisions—Water Pollution, Radiological Health, Indian Health, Division of Engineering (including air pollution) and the Taft Sanitary Engineering Center at Cincinnati.

As chief public contact man on these problems, Mr. Hollis is probably in his best element. "He's quiet and efficient and doesn't make a big show," says an admiring colleague. "But when you call on him in a discussion group or meeting you can be sure you won't draw a blank. He's always got something worthwhile to say."

One of his biggest tasks is keeping professional people alert to the problems. "There's a general feeling in the engineering profession that we've gotten on top of the water pollution problem and it's now just a matter of getting plants built and keeping even with the industrial boom," he says. "But

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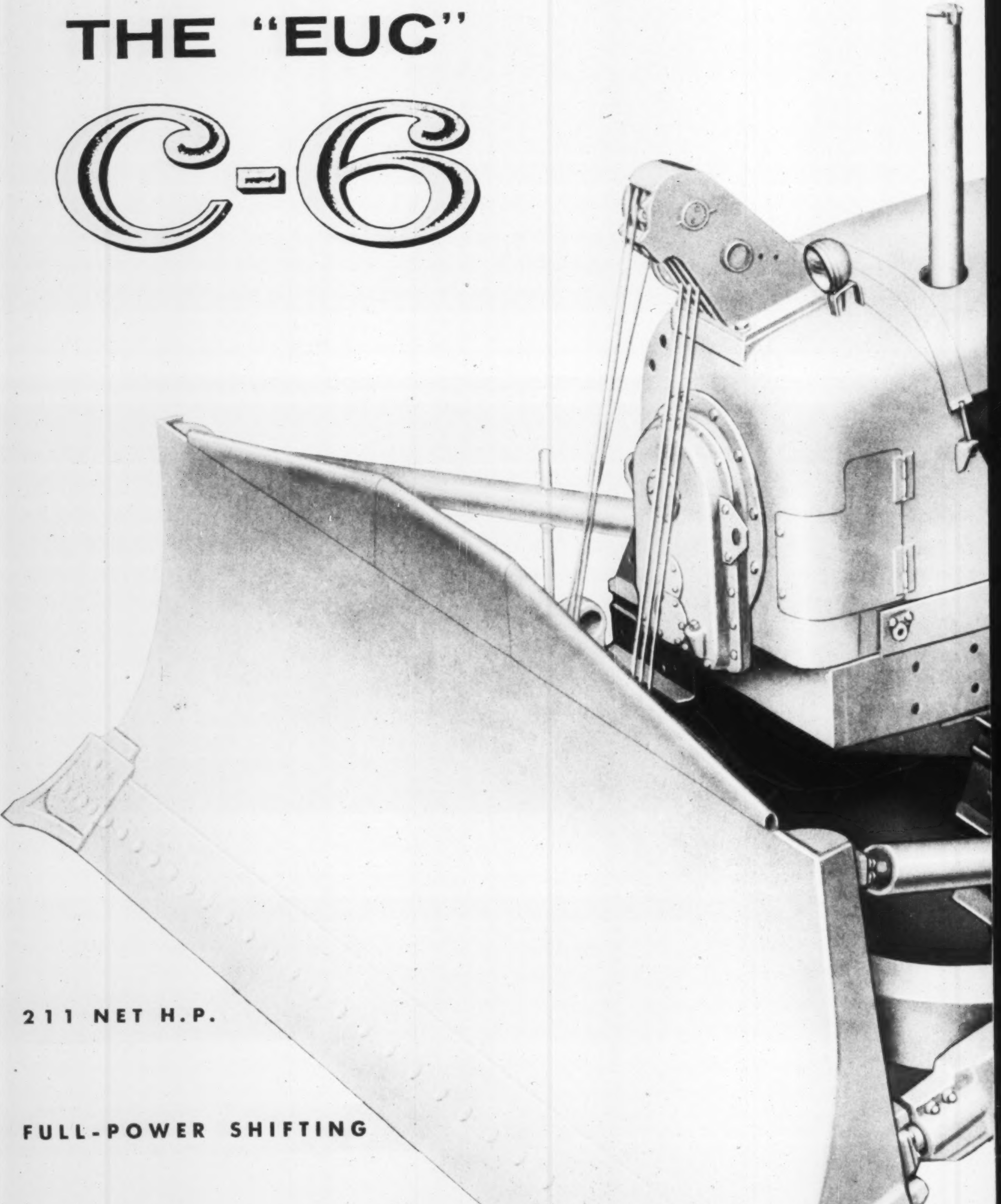
C-6



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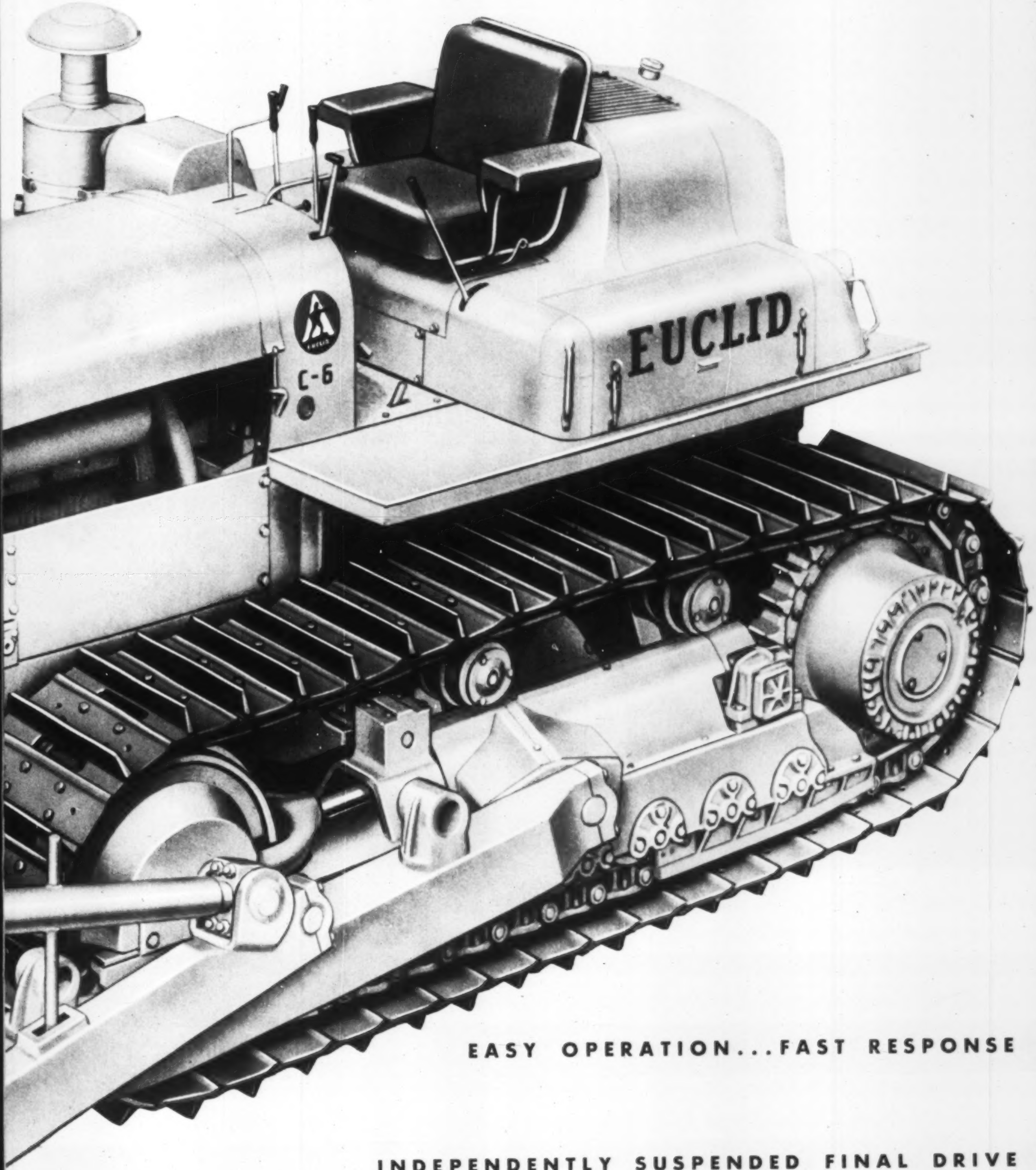

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Proved by over 5 years of rugged field test . . . in mines, quarries, heavy earthmoving and logging as well as on the proving grounds. With 211 net hp. and proven Torqmatic Drive, the C-6 features full power shifting and time-saving maneuverability . . . has plenty of power and speed for dozing, ripping, pushloading scrapers and all other big tractor work.

Operators report that excellent visibility and over-all ease of handling give the C-6 smooth performance that gets more work done every shift . . . and with less downtime for service and maintenance.

EASY SERVICING

Maintenance designed—the C-6 has exceptional accessibility and all major components are "out in the open"—easy to get to. For example, the engine is easily serviced or removed, and the converter, transmission, steering brakes and clutches assembly can be removed as a complete "package" without major disassembly . . . final planetary drives can be serviced without removing sprockets or breaking track . . . there are considerably fewer lube points than in competitive tractors.

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. . . a complete line of equipment for heavy earthmoving, mining, logging and many industrial operations . . .

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it isn't so. We still have a tough problem of finding out what the real health effects are of water, air, and food pollution. We have to develop the same knowledge about microchemical pollution that we now have about microbiological pollution."

He shakes a jar of water drawn from a tap at Wheeling, W. Va. and a half inch of detergent foam appears on the top. The Wheeling problem has since been licked but it demonstrates the increasing chemical pollution problem that can't be dealt with in the old-fashioned way.

"Partial treatment with chemicals won't be enough in the future," he says. "A hundred million people in this country depend on surface streams for drinking water. By 1975, it will be 150 million.

"The Ohio River Valley is developing into one long industrial complex: Each city has to re-use the water from the city above and that water is going to have to be more thoroughly treated.

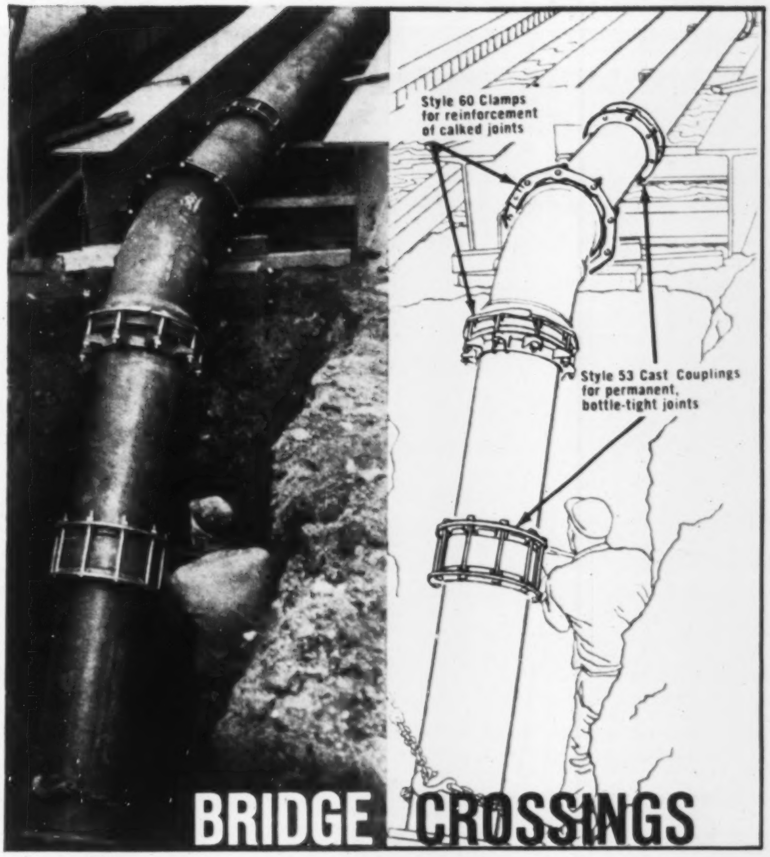
"The new synthetics don't break down under current treatment. The country spends $350 million a year on sewage treatment now. We should be spending more like a billion dollars a year on water and air pollution."

He feels the current federal program of matching grants to the states for construction of sewage treatment works, which he shepherded, is a tremendous success. In the three years it has been in effect, sewage works construction has just about doubled. Some 664 plants have been completed, another 561 are under way. If the bill raising the annual grants from $50 million to $80 million or more should become law next year (Congress held it back at the end of the session to avoid a pocket veto), it would stimulate about $500 million worth of construction per year.

The air pollution program is only getting under way. The federal government spends only $5 million a year, mostly on research and technical assistance to the states. "There's no question we'll have to expand this greatly," he says, "no question at all." He recalls the man-killing smog in Donora, Pa., in 1948 and the constant smoke in Los Angeles, where health damage has never been really determined. Very little has actually been done in urban areas to control air contamination, he points out.

Radiation is creating a new problem about which we know even less. The recently created Federal Radiation Council transfers considerable responsibility from the Atomic Energy Commission to the Public Health Service for research and setting of safety standards.

Mr. Hollis was born in Buena Vista, Ga., in 1908, and graduated from the



MADE FAST AND SIMPLE

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Getting this water supply main over the stream bed was made fast and simple by using plain end cast iron pipe, Dresser Couplings and Dresser Bell-Joint Clamps to reinforce the calked joints at the fittings. The whole job was accomplished in about one working day. Available random lengths of pipe were used in the crossing.

There are many long-life advantages built into a Dresser Coupled bridge crossing. The joints are non-rigid, allowing ample leeway for the inevitable vibration, ground settlement strains and other stresses inherent to tough locations. Dresser's exclusive gasket compounds have permanent resilience, assure bottle-tight sealing that lasts the life of the line.

On your next bridge crossing, or on *any tough spot,* do it the fast and simple way. *Install it – forget it* with maintenance-free Dresser Couplings.

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NOW AVAILABLE with a choice of two controls

Conventional float switch
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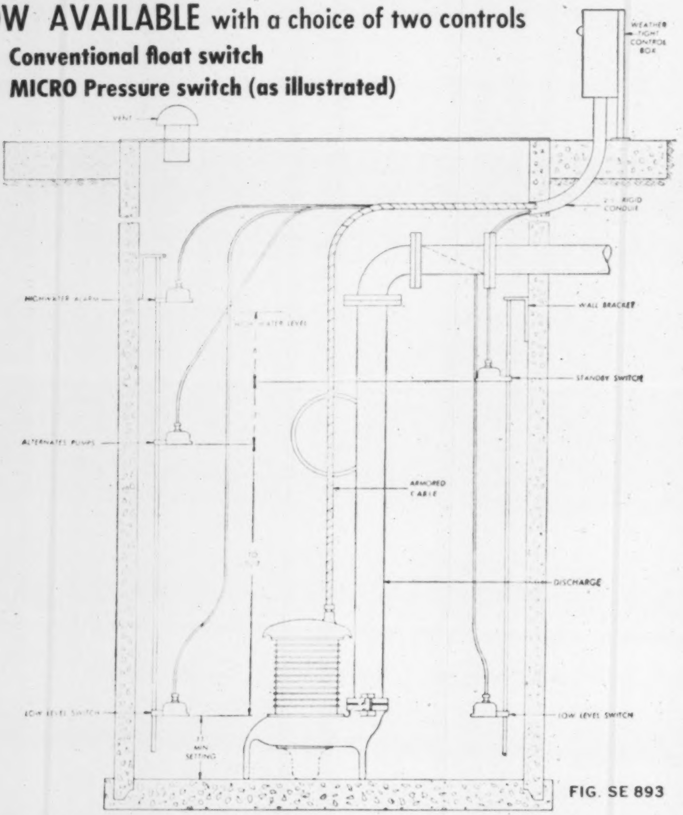

FIG. SE 893

Illustrated is a Duplex Installation of two **weil** Submersible Sewage Pumps employing MICRO Switch controls to start and stop pumps; to alternate pumps; and to provide for high water alarm. Note the ease with which switches are positioned (or changed) to control water levels. The Submersible MICRO Switch has no exposed moving parts, needs no servicing and coupled with the **weil** Submersible Pump provides an extremely efficient non-clog trouble-free pumping system.

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University of Georgia with a civil engineering degree in the heart of the depression. For a year he did research on typhus with the Rockefeller Foundation in Alabama before joining the Public Health Service's typhus research program in Georgia.

With only two years in the service, he was called upon to set up a state sanitation program for North Dakota. He held the job of state sanitary engineer from 1934 to 1939.

The Taft Sanitary Engineering Center at Cincinnati was also developed under his direction. It is from this center that PHS hopes to make the technical advances that will solve future pollution problems.

Mr. Hollis, like many top-ranking government officials, has had a number of offers from private industry at better than his $17,000 government salary. But he is loyal to his job. "There's a certain esprit de corps," he explains wistfully. "I don't know just what it is. You develop a deep feeling for the Service." His son has apparently caught it too. He is employed in research at the Taft Center.

Some day, when the 51-year-old executive retires from the government, he would like to set up a small non-government group to analyze national problems like pollution at the technical level and study trends that point up need for action.

"They could make recommendations without saying whether the federal or state government should do it, which always clouds the issue," he says. "Their advice would be useful for the agencies, and Congress would respect it as independent opinion."

Meanwhile, he has no serious quarrels with the support his programs have won from Congress. He has been testifying for one project or another for 15 years.

"I've found in the long run," he says, "that members of Congress are seriously interested in supporting what's essential. These problems affect their communities directly, and they have a pretty good grasp of their importance."

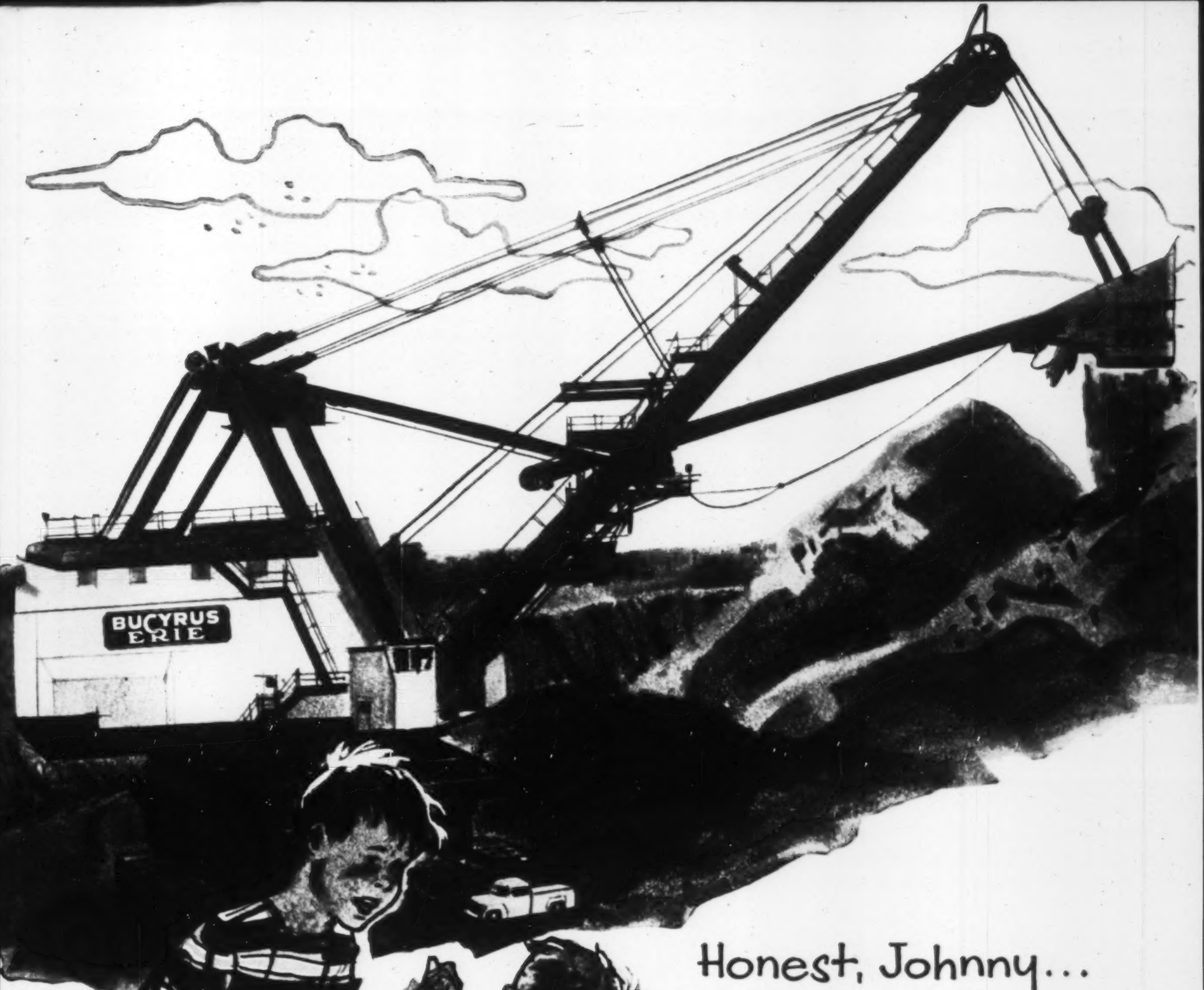
Careers

Retirements

O. R. Dinsmore retired after 37 years with the Washington state highway department. He started his career as draftsman and rose to assistant director.

Charles F. Riedlinger, superintendent of the Army engineer's reservation at Edge Moor, Del., has retired after 43 years of service. He directed the clearing of the Delaware River channel after the collision of two tankers in 1957.

(*Men and Jobs continued p. 56*)



Honest, Johnny... that's a real truck!

Johnny's confused! This Bucyrus-Erie excavator makes the truck look like a toy. But the fact that the Bucyrus machine towers over other equipment is not really important to its owners. What they like are its towering production records. Just think, in 24 hours it can remove over 120,000 tons of overburden!

Now is the time to take a fresh look at *your* operation and equipment. It is certain that somewhere in the B-E line there is an excavator that will fit your exact needs. Bucyrus-Erie builds shovels from 3/8 yards on up through 65 cubic yards. And, through the entire line, Bucyrus-Erie machines are GIANTS when it comes to production.

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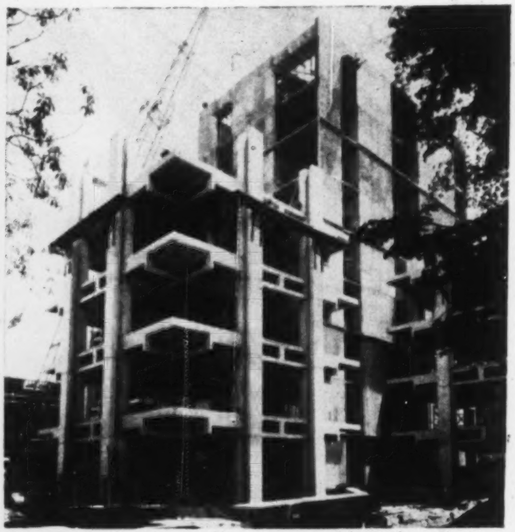
STRESSTEEL was the solution to this Engineering Problem



Medical Research Center, University of Pennsylvania, Philadelphia.

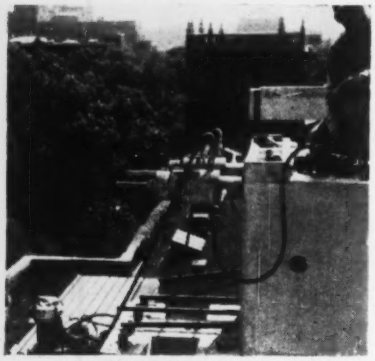
Louis I. Kahn, Architect: Keast & Hood and Dr. August E. Komendant, Structural Engineers.

Joseph A. Farrell, Inc., General Contractor.

Atlantic Prestressed Concrete Co., concrete units.

THE PROBLEM: How to assemble and prestress in place, 8 precast concrete segments in each floor system of a 7 story clear-span Vierendeel frame building, with maximum efficiency and minimum cost.

THE SOLUTION: Post tension with STRESSTEEL, taking advantage of the inherent rigidity of STRESSTEEL Bars and the simplicity of STRESSTEEL Wedge Anchors.



The building consists of 3 wings, each 47 feet square, made up entirely of precast members surrounding a central unit of cast-in-place concrete. The framing in each floor required post-tensioning 2 beams made up of precast segments. STRESSTEEL Bars, 2 @ 1⅛" Ø and 3 @ 1¼" Ø furnished a force of 575,000 lbs. per beam.

These bars were threaded through holes preformed in the interlocking precast segments by workmen operating from a scaffold suspended from the crane. STRESSTEEL Bars were simply and quickly tensioned with electrically operated hydraulic jacks and then pressure grouted.

In addition to precast applications, imaginative engineers are using STRESSTEEL Bars as the effective solution to many other problems. These high strength alloy steel bars are available in sizes up to 1¼" Ø with recommended working stress up to 90,000 psi. Equipped with wedge or threaded anchors, STRESSTEEL Bars have been used for sheet piling ties in cofferdams, embedded ties for tainter gate trunnions, arch ties, buttress ties and many other unusual and special applications.

You will achieve superior results at substantial savings with STRESSTEEL because it is . . .

- High strength alloy steel
- Low in initial cost
- Low in labor cost
- Easy to tension

Are you working on a special anchorage, tie rod or foundation problem? STRESSTEEL'S high strength reinforcement, combined with the advantages of post-tensioned prestressing, may well be the optimum solution. Ask us.

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Public Works

Maj. Richard Erlenkotter is the new area engineer for the Army at Providence, R. I. A 1944 graduate of West Point, he holds a masters degree in civil engineering from MIT.

Joe F. Mitchell takes over as city engineer at Thomasville, N. C. For the past three and a half years he has been city street superintendent.

Edwin F. Sullivan has been appointed assistant director for Region 11 of the Department of Interior's Bureau of Reclamation. He will be stationed in Sacramento, Calif. Mr. Sullivan, a civil engineer, has been with the bureau for 20 years and has been head of the Fresno, Calif., office since 1954.

L. H. Rosenthal is city engineer for Portland, Ore., succeeding **Gordon L. Burt,** who resigned. Mr. Rosenthal has been with the city for 35 years.

Dan Lee takes over as director of public works for Livermore, Calif. For the past three years he has been city engineer at Albany, Ore.

Harry A. Bagley, who has been field engineer in the construction department of the St. Louis sewer district, has been appointed chief of construction.

Neil C. Sullivan, Butte, Mont., consulting engineer, has been appointed city engineer.

Jack F. Neal, town manager of Tazewell, Va., has been named city manager of Roxboro, N. C. Mr. Neal succeeds **W. F. Timberlake,** who resigned

William A. Pitts is the first public works director for Davidson County, Tenn. He has been city-county planning director for Nashville and Davidson County.

Bernard P. Bellport has been transferred to the Bureau of Reclamation's Denver engineering center where he is associate chief engineer. He had been regional director of the Sacramento, Calif., office. Replacing him in Sacramento is **Hugh P. Dugan,** who has been assistant chief development engineer in the Denver office.

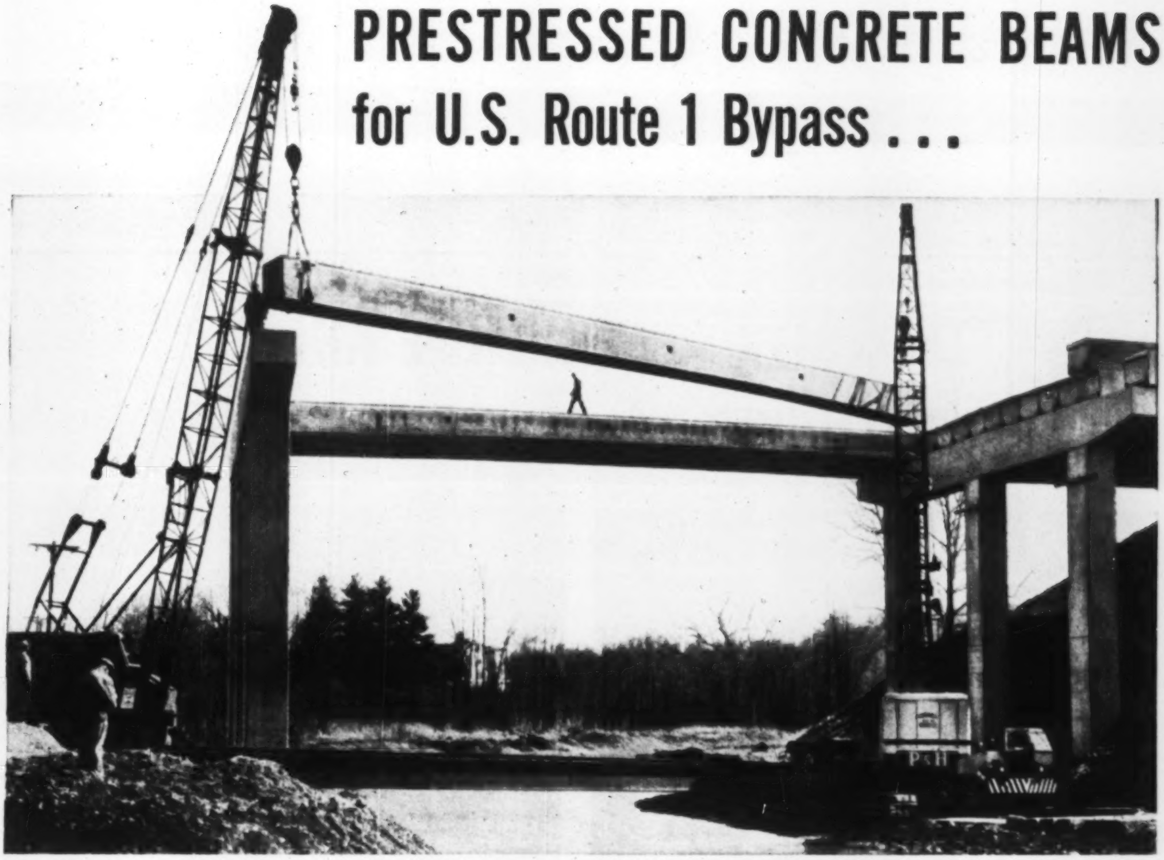
Roland M. White is aviation director for Dayton, Ohio. He had been city engineer in Kansas City, Mo., and in 1953 became city aviation director.

Brig. Gen. C. F. Dreyer has been assigned to Wright-Patterson Air Force Base in Dayton, Ohio, as chief of civil engineering.

John W. Spurrier returns to the Kentucky department of highways from private consultant work. He will direct the State's division of maintenance.

Maj. Harry B. Barke is deputy district engineer for the Army engineers in Baltimore. He will work on military construction and river, harbor and flood control projects in Maryland and Pennsylvania.

PRESTRESSED CONCRETE BEAMS for U.S. Route 1 Bypass . . .



Cranes lower prestressed concrete beam 95′ long, 4′ square, and weighing 58 tons, onto piers of one of the middle spans of the 4-span Ridley Creek Bridge. There are 16 beams per span. Note "railway" across creek at bottom of picture, used to trolley one end of beam across creek to crane at right.

• Ridley Creek Bridge, pictured here, is one of seven bridges required in the 8 mile long bypass around Media, Pa. Over 400 prestressed box beams, ranging in length from 40′ to 95′, were used in these structures.

Factors influencing the choice of this modern bridge construction technique were low initial and maintenance costs, ease and speed of erection, and the trim appearance of prestressed concrete.

In manufacturing the prestressed beams for these bridges, Atlantic Prestressed Concrete Company used Lehigh Early Strength Cement for maximum production efficiency. Units were completed quickly, ready for trucking to the job site as needed.

This is another example of the advantages of Lehigh Early Strength Cement in modern concrete construction.

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Allentown, Pa.

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Penna. Dept. of Highways

Engineers:
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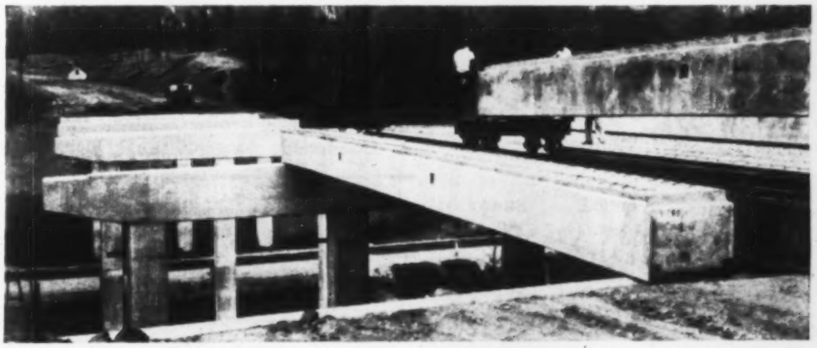
and McCormick-Taylor Associates,
both of Philadelphia, Pa.

General Contractor:
Glasgow, Inc.
Glenside, Pa.

Contractor for Construction of Bridges:
McClain Construction Co., Inc.
Philadelphia, Pa.

Manufacturer of Prestressed Beams:
New Castle, Del. Plant
Atlantic Prestressed Concrete Co.
Trenton, N. J. (wholly-owned Subsidiary of
Warner Co., Philadelphia, Pa.)

Ready Mixed Concrete for Beams Supplied By:
Warner Company
Philadelphia, Pa.

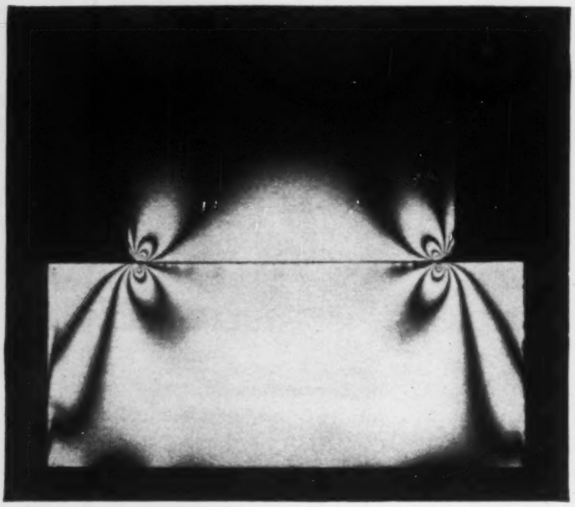


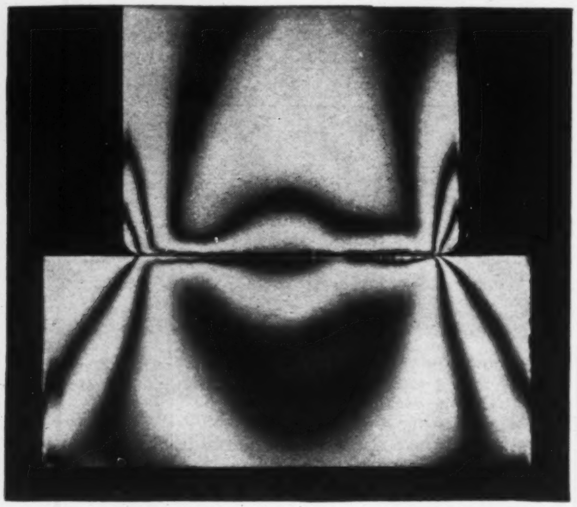
Placing one of shorter beams for end span at Ridley Creek. Mobile crane (out of picture to right) is moving beam on rail dolly out to meet crane stationed on creek bed below. The two cranes then move beam to final position.

One in a series of technical reports by Bower

BEARING BRIEFINGS

ROLLER BEARING LIFE AND CAPACITY LINKED TO STRESS DISTRIBUTION





These reproductions of photoelastic studies contain important evidence for every engineer and designer concerned with the performance and selection of roller bearings. In these photographs, the alternate dark and light areas, called fringes, indicate not only the magnitude of stress but also the stress distribution. The photographs were taken by Bower Research Engineers during a study of stress distribution in roller bearings.

The subjects represent rollers and raceways of two roller bearings under identical loads. The illustration at the left shows a roller of conventional design. The illustration at the right shows a Bower "Profiled" roller. That is, the roller is precision ground with a large radius generated along the body of the roller—a predetermined and controlled distance from each end.

The conventional roller photo (left) clearly shows how, under load, stress concentration builds up in and near the roller ends. This is called edge-loading. Such areas of concentrated stress are the breeding grounds for metal fatigue and eventual bearing failure.

In the photo of the "Profiled" roller (right) stress lines can be seen uniformly distributed across the whole length of the roller and raceway. There are no points of excessive stress concentration, consequently no starting points for early fatigue. Such a "Profiled" roller exhibits a great advantage in improved load carrying capacity, a most important bearing requirement.

Under actual operating conditions, Bower "Profiled" roller bearings show a considerably longer life at higher speeds and under greater loads than conventional roller bearings.

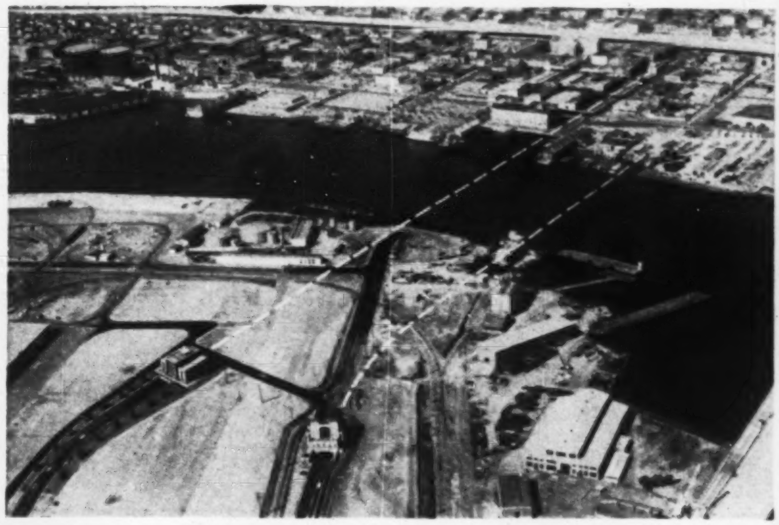
Because of this, and of other Bower features to be discussed in later technical reports, we suggest that you consider the advantages of Bower bearings in satisfying your future bearing requirements.

★ ★ ★ ★

Bower engineers are always available, should you desire assistance or advice on bearing problems. Where product design calls for tapered roller bearings or journal roller assemblies, Bower makes these also in a full range of types and sizes.

BOWER ROLLER BEARINGS

BOWER ROLLER BEARING DIVISION — FEDERAL-MOGUL-BOWER BEARINGS, INC., DETROIT 14, MICHIGAN



Dotted line at right is existing tunnel, line at left is site of . . .

Tunnel Under Oakland Estuary

California's Department of Public Works, Division of Highways, drew eight bidders for its Webster Street Tube, which went at $16,641,001 to the low combination of Pomeroy-Bates and Rogers-Gerwick, San Francisco.

Work includes 12 tube sections each 200 ft long by 37 ft in diameter. They will be built in drydock, floated to position, sunk in prepared trench and connected in depths up to 90 ft. There will also be portal buildings, grading and surfacing of approach roads and ramps, and street connections.

Portal to portal the length is 3,350 ft. The tunnel will have a two-lane roadway, all tiled interior and continuous fluorescent lighting. Ventilating equipment to supply almost a million cu ft of fresh air per minute was priced at $500,000 by the successful contractor.

The low bid was only 1.8% or $312,480 under the second low, placed by Peter Kiewit Sons' Co., San Francisco.

The state furnishes paint, traffic signal lamps, security fencing, metal plates, railroad crossing material for 3½-in. ducts. The contractor furnishes $285,000 worth of tube lighting and fixtures and $38,000 worth of highway lighting and neon signs, and all other materials and equipment.

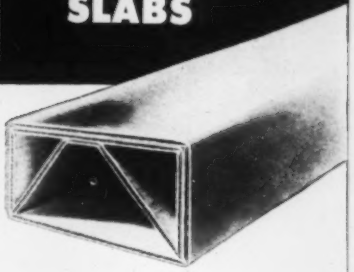
Prevailing wages in San Francisco, including fringe benefits, are: carpenters, $3.855; hoisting engineers, $3.505; tractor operators, $3.90; power crane & shovel operators, $4.05; air compressor operators, $3.30; common laborers, $2.965. Three years is allowed to complete the project.

The bidding included:

1C Pomeroy-Bates & Rogers-Gerwick, San Francisco $16,641,001
2 Peter Kiewit Sons' Co., San Francisco 16,953,480
8 Pacific Bridge—Christiani Nielson & Asso., Alameda 21,080,540

Bids: 9-10-59 Items	Unit	Quantity	Unit Prices 1C	 2
Bridge, temp RR, Alameda	ls	job	$155,000	$81,000
1st St	ls	job	173,000	143,000
& detour, 3rd St	ls	job	75,000	60,000
intercpt sewer, 1st St	ls	job	29,000	30,000
temp sewer, 2nd St	ls	job	13,000	12,000
Timber barricade	ea	224	50.00	30.00
Conc garage & pumphse, remove	ls	job	5,000	3,000
Clear waterfrnt, Alameda	ls	job	16,000	3,000
Oakland	ls	job	84,000	73,000
Traffic stripe, remove	lf	6,200	0.20	0.11
Exist road, obliterate	sy	1,080	1.40	0.45
Concrete, remove	ls	job	4,300	20,000
Clear & grub	ls	job	7,100	1,600
Wat sup, dev & furn equip	ls	job	4,300	3,200
Water, apply	Mgal	1,550	2.90	2.70
Compact original ground	sy	14,900	0.30	0.08
Exc, roadway	cy	15,600	0.85	0.95
struct	cy	10,530	2.85	2.40
Backfill, struct	cy	8,827	2.85	4.00
Exc, ditch & channel	cy	198	2.85	4.00
dredger	ls	job	2,016,541	700,000
struct, portal bldg, Alameda	cy	13,390	19.50	12.00
Oakland	cy	12,600	11.75	8.00
struct, appr, Alameda	cy	13,240	12.50	10.00
Oakland	cy	11,405	8.40	4.00
open trench	cy	87,500	5.60	6.60
Gravel base, tremie	t	2,560	11.70	9.10
Bkfl matl, imported	ls	job	1,313,000	1,400,000
heavyweight	t	13,000	11.40	26.00
struct, portal bldgs	cy	4,480	3.60	6.00
Ala. & Oak approach	cy	3,315	7.00	8.00
struct, open trench	cy	53,600	3.95	2.20
Untreated base	t	840	2.85	3.20
Subbase matl, imported	t	22,860	2.10	2.90
Mix, spread, compact CTS	sy	4,160	0.35	0.25
CTB	sy	24,600	0.35	0.40
Portland cement	bbl	1,600	6.10	6.00
Asph, emul, cur sl, pt bdr & fog sl ct	t	35	85.00	52.00
liq, MC-2, cur sl	t	4	85.00	63.00
SC-1, pr ct & pen tr	t	31	85.00	52.00
paving, PMS	t	306	85.00	8.50
Mineral aggr, PMS	t	6,130	9.25	8.50
Asph, liq, SC-2, pen tr	t	2	85.00	70.00
Sand, penetration treat	t	13	10.00	13.00
Parking area	ls	job	7,000	38,000
Pavement, cl B concrete	cy	920	70.00	25.00
tie assemblies	ea	560	14.20	0.60
Conc, cl A, minor struct	cy	95	142.00	140.00
Ala. portal bldg subb, 480 cy	ls	job	16,000	64,000
Ala. appr subb, 1520 cy	ls	job	44,000	74,000
watrprfg base slab, 1,350 cy	ls	job	43,000	70,000

(Continued on page 60)



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JAY-VOIDS lightweight, simple one-piece form folds easily for fast assembly and placement . . . are shipped and stored flat.

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- Void Slabs
- Waffle Slabs
- Pre-Cast
- Lift Slabs

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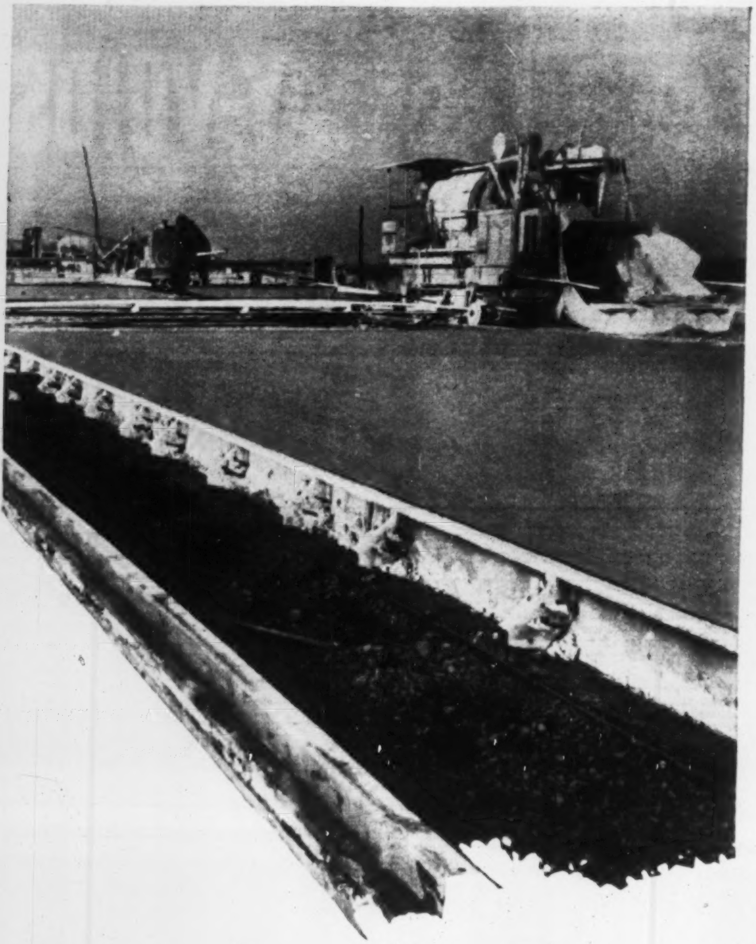

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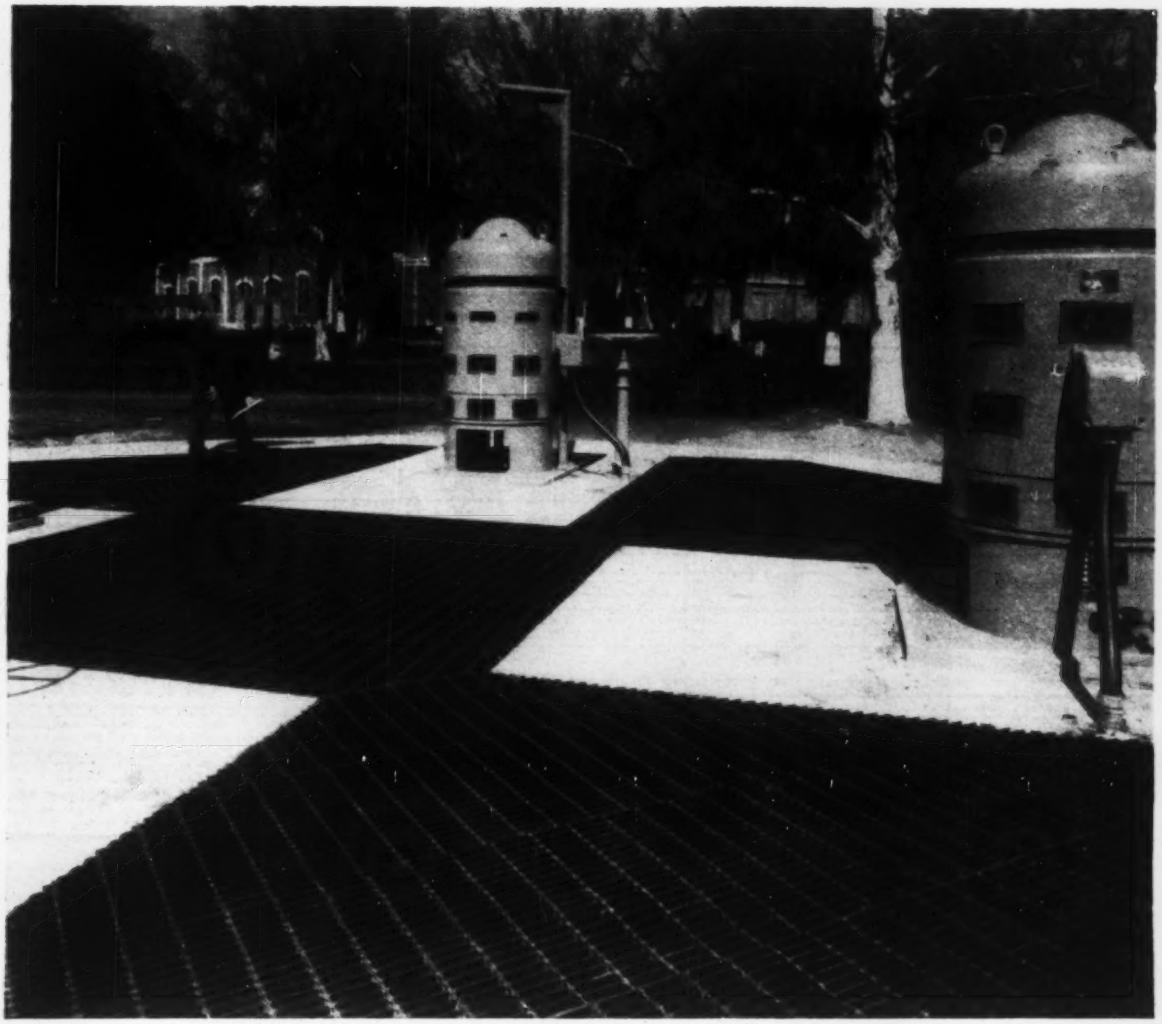
. . . Oakland Tunnel

Bids: 9-10-59

Items	Unit	Quantity	Unit Prices 1	2
Conc, cl A				
subway pave & fndn, 3,480 cy	ls	job	$95,000	$117,000
tremie fndn, 1015 cy	ls	job	45,000	52,000
portal bldgs, 7444 cy	ls	job	497,000	765,000
tube, cip, 10,490 cy	ls	job	462,000	590,000
retaining walls & bridges, 2320 cy	ls	job	129,000	132,000
subway interior, 7,840 cy	ls	job	524,000	590,000
Oak waterfrnt, 706 cy	ls	job	94,000	88,000
Prcst tube segments f	ea	12	370,000	430,000
place	ea	12	18,000	73,000
Seal tube jts & dewater	ls	job	327,000	350,000
Conc, cl C, pipe encase	cy	80	71.00	50.00
Rubber waterstops	lf	4,350	3.50	2.00
Steel bar reinforcement				
subway, 3,438,000 lb	ls	job	533,000	340,000
cip tube, 1,720,000 lb	ls	job	317,000	207,000
Membrane waterproofing	sy	21,440	7.70	5.60
Tr Doug fir piling f	lf	3,710	3.75	2.00
Timber piles, drive	ea	92	54.00	50.00
Concrete piling f	lf	50,062	5.20	7.00
drive	ea	516	98.00	60.00
tremie fndn, drive	ea	245	75.50	160.00
Stl sht piling, Oakland	ls	job	27,000	14,500
sign structures	ls	job	28,000	5,000
Misc iron & steel	lb	21,600	0.85	0.38
Metal work	ls	job	35,000	17,000
Pipe railing	lf	4,392	7.00	8.50
Curb armor	lf	6,724	3.30	2.75
Barrier railing	lf	1,658	27.00	13.50
Clean & paint struct stl & sht metal	ls	job	14,000	50,000
Tr Douglas fir timber	Mfbm	78	522.00	350.00
Conc, cl B, curbs, gutters & sidewalks	cy	874	57.00	47.00
Curb dowels	ea	80	7.10	1.60
Monument, rt of way	ea	26	35.00	9.00
survey	ea	7	35.00	13.00
Riprap, light stone	t	1,920	6.60	4.50
Metal plate guard rail	lf	660	7.80	3.60
Guide posts & markers	ea	105	10.00	7.00
Ch link fence, tp A, 72″	lf	2,500	4.30	1.75
tp C, 72″	lf	2,420	4.20	2.30
gates, 10′	ea	6	250.00	160.00
15′	ea	4	320.00	175.00
108″ high	ea	2	140.00	90.00
Ch link fence, salvage	lf	8,530	1.06	0.40
reconstr	lf	6,450	1.80	0.80
RCP, cl III, 12″	lf	1,240	7.10	3.40
18″	lf	2,140	10.00	5.00
21″	lf	34	14.10	6.00
24″	lf	1,240	17.00	7.50
30″	lf	650	21.30	11.00
36″	lf	840	28.40	12.00
cl IV, 30″	lf	44	22.70	12.00
36″	lf	44	28.40	13.00
24″ rub gask jts	lf	420	17.00	6.80
Auto drainage gate, 12″	ea	1	2,000	120.00
36″	ea	1	2,500	440.00
PMP underdrains, 8″	lf	1,100	3.50	2.20
Roadway finishing	ls	job	3,000	1,700
Subway finishing	ls	job	14,000	20,000
Air duct partitions	ls	job	2,000	1,200
Reloc traf check-point bldgs	ea	3	850.00	1,700
MH fr & cover, salvage	ea	21	35.00	18.00
instal	ea	10	71.00	30.00
MH, adj to grade	ea	5	71.00	190.00
pipe shaft	lf	90	35.60	18.00
drop connections	lf	10	15.00	30.00
Clay sewer pipe, 8″	lf	1,310	7.10	2.50
10″	lf	360	8.50	2.80
12″	lf	380	10.60	3.10
CMP, asb bond bit lined, 12 ga, 48″	lf	100	28.40	119.00
Sewer bypass,				
12″ weld stl pipe	lf	1,950	4.20	11.00
temp pumphouse	ls	job	13,500	17,000
pumping equipment	ls	job	5,000	9,000
Pump sta, Webster St	ls	job	16,500	50,000
Hwy lt sys & neon signs	ls	job	38,000	40,000
Tube lighting & fixtures	ls	job	285,000	300,000
Changeable message sgns & signal systems	ls	job	22,000	23,000
Sec ltg, Army boundary	ls	job	6,000	6,100
Elec work, general	ls	job	310,000	330,000
misc	ls	job	26,000	27,000
Emergency alarm system	ls	job	21,000	22,000
Ventilating equipment	ls	job	500,000	520,000
Fan tests, additional	ea	2	3,600	3,100
Building hoists	ls	job	37,000	35,000
Plmb & fire ftg equip	ls	job	15,000	150,000
Subway, prep for tiling	sf	200,890	0.16	0.10
tile, 4¼x4¼″	sf	177,230	2.13	1.70
6x6″	sf	23,660	2.13	2.10
Portal bldgs, spec items	ls	job	10,000	15,000
paint exterior	ls	job	3,000	2,500
metal louvers	ls	job	40,000	52,000
window walls	ls	job	17,000	14,000
composition roofing	ls	job	4,500	15,000
Ballast f	t	3,600	2.80	3.50
Rails salv	lf	12,200	0.35	0.55
f	lf	10,750	3.20	2.40
Ties salv	ea	1,770	0.30	0.60
f	Mfbm	72	225.00	150.00
Tracks lay	lf	8,400	3.55	4.80
Frogs f	ea	6	500.00	630.00
Switches f	ea	6	1,050	800.00
Bumping posts	ea	2	740.00	250.00
Ducts, 3½″ instal	ea	6	2,000	2,600
Ducts sys splicing chambers, 3½″ instal	ls	job	4,000	1,800

f Furnish p Place cip Cast in place



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Blaw-Knox Equipment Division
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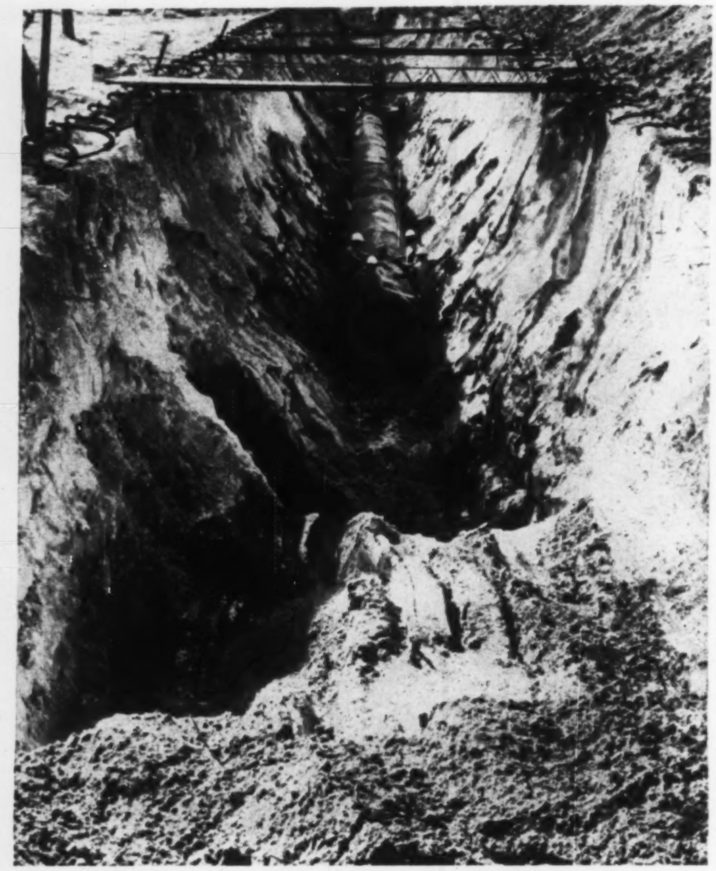
HIGH BANKS,



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	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 del. per cy
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.33a‡	$3.93a‡	$3.59a‡	$3.10s‡	$3.10s‡	$1.85‡s	$2.18s	$2.33s	$1.65r	$1.75r	$0.175o	$0.21o	$13.75g
Baltimore	4.32a	3.91a	3.46a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.50ou
Birmingham	4.23c	3.30cf	....	2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65d	1.75d	.18	.18	14.00q
Boston	5.80ip	4.52ap	4.80imp	3.00qsz	3.00qsz	3.00qsz	1.75qsz	1.85qsz	....	....	.23o	.275ao	15.00q
Chicago	4.13ag	3.87ag	3.90/3.95g	3.78‡e	3.78‡be	4.13‡be	3.95‡be	3.95‡be	2.25‡s	2.25‡s	.26‡e	26‡be	13.50e
Cincinnati	4.68c	4.16c	4.18c	2.29‡cu	2.34‡cu	2.44‡cu	2.51‡cu	2.74‡cu	1.80u	1.80u	.20e	.25ao	13.25qr
Cleveland	1.30‡	....	3.89‡ae	2.25ae	2.10ae	1.75ae	2.70fy	2.70fy	2.20‡fR	2.20‡fR	....	23f	16.50u
Dallas	3.65a	3.25a	3.53a	2.65‡a	2.75‡a	1.90‡	2.43	2.63	....	....	....	27	12.50z
Denver	4.79a	4.29a	4.79	1.95‡	2.15‡	1.42‡b		3.00‡z	....	....	.25	27ae	11.90
Detroit	4.25a	3.74agq	3.72a	4.50‡abm	4.50‡abm	4.25‡abm	3.75‡abm	3.75‡abm	2.47aqaa	2.47aqaa	.22u	25‡au	15.00eaa
Kansas City	4.23a	3.83a	4.10a	....	....	1.85‡a	2.00‡a	2.00‡a	....	....	.22a	.26c	14.00
Los Angeles#‡	5.12ch	4.68ch	5.60c	2.56‡al	2.76‡al	2.41‡al	2.41‡al	2.46‡al	....	....	.19f	.305	12.46hlz
Minneapolis	4.41a	4.00a	4.00a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae	....	....	.20q	....	14.05f
Montreal	3.36‡de†	3.11‡de†	3.72‡de†	1.90‡a†	2.15‡a†	2.40‡a	1.90‡†	2.15‡†	2.00†	2.00†	.20†	.28t†	10.80ek†
New Orleans	4.06b	3.65b	3.85b	2.61b	2.61b	2.16b†	....	....	1.65d	1.75d	.29r	.29	14.00e
New York	4.58aR	4.18aR	3.65aR		3.20bkd	2.30bkd	2.85blbb	3.10blbb	....	....	.265nwo	.32bwo	17.60ay
Philadelphia	4.39‡ae	3.99‡ae	3.51‡e	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.25‡a	2.25‡a	....	.225	13.90z
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.85‡aqv	2.85‡aqv	3.08‡aqv	2.00‡aqv	2.00‡aqv	2.10w	2.10w	.28r	.28r	15.80e
St. Louis##	4.34a	3.94a	4.04a	3.45‡as	3.30‡as	2.40/3.40‡as	1.75js	1.75js	....	....	.255‡s	.315‡cs	13.68/14.10g
San Francisco	4.34c	3.79c	4.78c	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28cl	13.00cw
Seattle	4.22‡a	3.60ao	4.40a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	....	....	.324s	.45cs	13.90j
Toronto	5.00i	4.00Rt	5.00i	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.26	.275cu	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax ## Add 2% intrastate sales tax. R Revised. † Plus 6% Mun & Prov tax.

CEMENT: •a Less 10¢ disc. 15 days. •b Less 2% disc. 15 days. •c Less 10¢ disc. 10 days. •d 10¢ disc. 20 days. •e Truckload lots. •f Fob mill, add $14.58 to $21.31 per car switching charges. •g fob mill + freight. •h LCL. •i Less 2% disc. 10 days. •j Truck lots. fob yard. •k 100 bag lots •l over 150 sacks. •m Sold in bags only. •n Less 5% disc. 30 days. •o Plus 50¢ for Sat. del. •p 5-8 ton truckload. •q F.o.b. mill •s In bags & bbl. Only •t min. 7 tons

SAND, GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons up. •d Less 5¢ disc. 10 days. •e Less 2% disc. 10th. •f Less 2% disc. 15th. •g Less 5% for cash. •h Less than 5 tons. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2% for cash. •n F.o.b. cars. •q F.o.b. yard. •r less 5% disc. 15th. •s Less 2% disc. 10 days. •t Less 10¢ disc. 10 days. •u Less 5¢ disc. 10 days. •v Less 2% disc. 15 days. •w Less 10¢ disc. 15 days. •x Incl. 35¢ switch. charge. •y F.o.b. dock. •z 5-8 tons. •aa Less 5% disc. 15 days. •bb Less 2% 25th of month

CONCRETE BLOCK: •a Cinder. •b Waylite. •c Haydite. •d Celocrete, •e 5¼ x 8 x 12 in. •f 8 x 4 x 16. •g F.o.b. truck at job. •l F.o.b. plant San Rafael. •m F.o.b. yard. •n 8 x 8 x 18. •o Less 2% disc. 10 days. •p Less 2% disc. 10th. •q Less 5% disc. 10th. •r Less 2% disc. 15 days. •s Less 2% disc. cash. •t Siporex, 7 x 8 x 18. •u Less 5% disc. 10 days. •v Less 12% disc. 15th. •w Eff. 1/1/57

READY MIXED CONCRETE: •a 6 cu yd or over del. Man. •b 25 cu yds or more. •c 10–100 cy. •d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. •e 3,000 lb comp. •f 2,500 lb. comp., less 5% disc. 30 days. •g Less 25¢ disc. 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 6% mun. & prov. tax. •l 1:2½:3½ base price. •m F.o.b. yard. •n Plus escalator clause. •o Less 2% disc. 15 days. •p Less 50¢ disc. 15 days. •q Less 2% disc. 10 days. Add 50¢ per zone. •r 2000 wgt. •s Less 5% disc. 10 days. •t Incl. 50¢ heating. •u Less 2% disc. 15th. •v Sat. del. + 50¢. •w 10-100 cy. •x Del in zone 20-B. •y less 25¢, 10 days. •z less 1% in 30 days. •aa 6 bag mix

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 40¢ per bbl., not refundable *Prices guaranteed through December 31, 1959*

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45	Buffington, Ind	$3.40	Steelton, Minn	$3.45	Muskegon, Mich	$3.45	Toledo, O	$3.45
Clinchfield, Ga	3.45	Independence, Kan	3.25	Leeds, Ala	3.30	Saginaw, Mich	3.45	Milwaukee, Wis	3.50
Kingsport, Tenn	3.45	Hannibal, Mo	3.35	Duluth, Minn	3.45	Wyandotte, Mich	3.45	Green Bay, Wis	3.50
West Des Moines, Iowa	3.50	Northampton, Pa	3.50	Hudson, N. Y.	3.50	Buffalo, N. Y	3.55	Ironton, O	3.45
Nazareth, Pa	3.50	Universal, Pa	3.60	Alpena, Mich	3.35	Oswego, N. Y	3.60	Montreal City	2.56
Bath, Pa	3.50	Waco, Tex. (+ 10¢ tax)	3.35	Detroit, Mich	3.45	Cleveland, O	3.50	W. Winfield, Pa	3.60
Lesley, Pa	3.50	Giant, S. C	3.45	Howes Cave, N. Y	3.50	Alsen, N. Y.	3.50	Security, Md	3.50

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	e	e	e	$28.60PS	$45.00PS	$0.2740PS	$0.235S	$0.1375wS	$0.245wS	$0.1325S	$0.1325S	$0.245
Baltimore	e	e	e	21.00i		.09i	0.18i	.09iwE	.18iwE	.095	.10i	0.19i
Birmingham	......	66.00i	......	25.12	25.69O	.1069	0.1093O	.1162w	.1188Ow	.1006O	.1069	0.1093O
Boston				22.00apS	46.00apS	22.00awS	46.00awS	.105awF	.22awF	.14aOR	.15OR	......
Chicago	150.00‡a	95.00‡ab	3.95/4.00‡aj	22.00b	32.00b	20.40bv	30.40bv	.10bwH	.18bwH	.08b	......	......
Cincinnati	......	......	......	26.00SU	......	26.00ff	......	.1165wSU	......	.109	.1265	......
Cleveland	......	89.50‡d	6.30	26.00tA	......	26.00twA	......	.1115twAF	......	......	.1180tA	.21A
Dallas	e	40/80p	e	26.90	46.35	.1138	.1983	30.50	52.45	.1100	.1138	.1983
Denver	......	62.00a	......	......			......		......	......	......	......
Detroit	......	116.00	......	30.90R	......	31.00vR	......	.1342wIR	......	.1000	......	.28
Kansas City	e	e	e	18.00el	......	18.00ev	......	.0825cwJ	......	.079c	0.126c	....
Los Angeles#	e	e	e	21.50dmz	......	21.50dvz	......	23.00dKz	......	22.00daaa	23.90jXv	26.30jXv
Minneapolis	......	......	3.73h	25.00		26.00v	......	10.115w		0.105	.1375bb	......
Montreal	e	e	e	30.50n	43.60n	.167n	.211n	17.80nuE	22.20nuE	.155n	.242n	.27nX
New Orleans	e	e	e	20.00e		20.00ev	......	.095ew	......	.085eB	.095eBL	.1905eB
New York	......	......	3.70f	23.99mO	45.94mO	23.99vtO	45.94vtO	10.61uF	20.01uF		10.68u	20.11u
Philadelphia	175/185	......	......	18/21U		18/21U	......	0.085/.10FU	......	0.085/.10U	......	......
Pittsburgh	60.00k	95.00n	6.35n	31.20is		31.20isv		.1403‡S		.14‡S	.1403i	
St Louis##	......	......	......	19.74f	21.19	.1825f	.1825	.080f	.092fw	0.165f	.1825O	.30R
San Francisco	......	70.00	......	22.50gdd	41.00gdd	22.50gkvdd	41.00gkvdd	22.50gNdd	46.50gNdd	23.25gvWdd	23.50gvXdd	2023gXdd
Seattle	......			25.00z	40.00h	25.50vacc	......	26.50KE	......	24.25hvY	23.50hvX	45.10hrvX
Toronto	......	135.50f‡	4.50f	41.10	60.66ee	0.2075	0.2773ee	0.222w	0.2704wee	0.233	0.218Zee	.273Zee

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: •a Less 2% disc. 10th. •b 3 x 3¾ x 8. •c 2¼ x 8¼ x 4. •d Truckload lots. •e Not used. •f 2" interior 6 lb tr. •g Less $1/Mdisc. 15th. •h 2" tr, 8 lb. •i 3 x 3⅝ x 8½. •j 2½", 6 lb. tr. •k Used. •l Redshale. •m Pine: oak $6.57. •n Truck del. •o Less $1/M disc. 15 days. •p Used: $40; new: $80.

ASPHALTS: •a F.o.b. refinery, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. refinery, Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50-110 penetr. •l Less than 100 penetr. •m 40/300 penetr. •n F.o.b. refinery, Montreal. Fed. tax included: add 6% for mun. & prov. •o Drums not avail. Shipped in steel bbl. •p 60/70 penetr. •r In customer's drums. •s Shipped in drums, per drum. •t 150/300 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks •y F.o.b. Oakland. •z F.o.b. Edmonds. •A F.o.b. refinery, Cleveland, •B F.o.b. Destrehan, La. •E RC. •F Also RC. •G Also MS •H RC 0-5 incl. •I MC 4. •J MC, RC $0.095. •K MC 3, 4, & 5. •L MS. •M MC 1-5, RC 1-5, $0.0918. •N MC 3. •O Truckload. •P F.o.b. refinery, Atlanta. •Q F.o.b. Eldorado, Ark. •R Delivered within 50 mi. •S Less 2% disc. 10 days, net 30. •T Less 1% disc. 10 days. •U F.o.b. refinery. •V Less 2% disc. 15 days. •W SC 2. •X RS 1. •Y SC 1. •Z Incl. 10% Sales Tax. •aa SC 3, 4, & 5. •bb RS 3. •cc In used drums. •dd Less disc of $1 ton. ee 45 Imp. gal. drums •ff 60-150 penetration

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Sept. 24; Next, Oct. 22.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Oct. 1; Next, Oct. 29.
- Wage Rates, Building Board, Lath, Insulation: Last, Oct. 1; Next, Oct. 29.
- Iron & Steel Products, Pipe: Last, Sept. 17; Next, Oct. 15.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—LB & CA

Columbia Constr. Co., 11 Hanover St., Malden, Mass., CA **$912,000**, HOSPITAL adjoining Salem Hospital, SALEM, MASS. North Shores Babies & Children's Hospital, Ropes House, 75 Dearborn St., Salem, Mass. Bids Aug. 11. CD 8/13, under LB.

▲ **Frank Mercede & Sons**, 72 Little Hills Drive, Stamford, Conn., LB **$1,273,000**, CHURCH, FELLOWSHIP HALL and SUNDAY SCHOOL, Oenoke Ridge, NEW CANAAN, CONN. St. Mark's Episcopal Church, 117 Oenoke Ridge, New Canaan, Conn. Bids Sept. 9. CD 8/25.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **D. C., Wash.**—BA 10/30—D. C. Govt. Highway Dpt., 499 Pa. Ave. N.W., superstructure for West Highway Bridge over Potomac River, vicinity 14 St. Plans deposit $50; substructure for West Highway Bridge over Potomac River, vicinity 14 St. Plans deposit $50. Howard, Needles, Tammen & Bergendoff, 1805 Grand Ave., Kansas City, Mo., engrs. CD 9/5/58.

BUILDINGS—BA

▲ **Md., Cambridge**—GERIATRIC BLDG.—BA 10/13—State Dpt. P. Imprvts., 301 W. Preston St., Baltimore, Zone 1, brick, concrete, steel, block geriatric bldg., Eastern Shore State Hospital. $1,000,000. Plans deposit $60. John A. Ahlers, 901 St. Paul St., Baltimore Zone 2, archt. CD 3/14/58.

▲ **Md., Halethorpe** — BREWERY — BA 10/21 — Carling Brewing Corp., 9400 Quincy Ave., Cleveland 6, O., (selected list bidders), brewery $16,000,000. McGeorge-Hargett, 7016 Euclid Ave., Cleveland 3, O., engrs. CD 4/9.

▲ **Pa., Reading**—PLANT, etc.—BA About 11/1—Greater Berks Development Fund, c/o Chamber of Commerce, 1 story, 400x400 ft., steel mfg. plant, heating plant and auxiliary structures $2,400,000. Greater Berks Associated Architects (Frederick A. Muhlenberg & Assocs., Muhlenberg Bros. & Carl A. Eisenhower), 230 North 5th St., archts. Kneas & Long, 504 Woodland Terrace, Phila., Zone 4, structural engrs. Gilbert Assocs., Inc., 525 Lancaster Ave., Reading, mech. engr.

▲ **N. J., Harrison**—HIGH SCHOOL—BA 11/1—Bd. Educ., 221 Cross St., high school, $2,000,000. Alfonso Alvarez, 204 Bellevue Ave., Upper Montclair, archt. CD 9/18.

▲ **N. J., Montclair**—HIGH SCHOOL—BA 12/15—Bd. Educ., Town of Montclair, high school, $2,900,000. Alfonso Alvarez, 204 Bellevue Ave., Upper Montclair, archt. CD 8/4, under LB.

BUILDINGS—LB & CA

▲ **Wilaka Constr. Co.**, 11 E. 44th St., New York 17, N. Y., CA **$1,657,000**, general contract PUBLIC SCHOOL 274, Koscuisko St. and Bushwick Ave., BROOKLYN, N. Y. Bureau Contr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Sept. 3. CD 9/8, under LB.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y., CA **$1,764,000**, general contract PUBLIC SCHOOL 128, Audubon Ave. between 168th and 169th St., Manhattan Boro, NEW YORK, N. Y. Supt. Design, Constr. & Physical Plant at office Bureau Constr., Bd. Educ., 4th F., 42-15 Crescent St., Long Island City 1, N. Y. Bid Sept. 16. CD 9/21, under LB.

▲ **Theodore Julio**, 3024 Spaulding Ave., Baltimore 15, Md., Separate Contracts, **$1,120,000** 80 brick frame detached DWELLINGS, Liberty Manor Developments, west of BALTIMORE, MD.

▲ **Cogswell Constr. Co.**, 513 Park Ave., Baltimore, Md., LB **$2,216,307**, (6 bidders), CATHOLIC HIGH SCHOOL for BOYS, Sinclair Lane and Erdman Ave, BALTIMORE, MD. Catholic Diocese of Baltimore, 408 N. Charles St., Baltimore 1, Md. Bids Sept. 22. CD 9/15.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Florida**—BA About 11/3—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 1, Canal 24, Sect. 2, 21 mi. canal, installing pipe culverts, bridge removals and related work, incl. (a) excavating 100 ft. adjacent canal and constr. railway bypass embankment at F.E.C. Railway's new Canal 24 bridge site (b) steel sheet pile spillway structure at upstream end of work Central and Southern Flordia Flood Control Project CIVENG-08-123-60-14. CD 9/22/58.

HEAVY CONSTRUCTION—LB & CA

▲† **Carter Contg. Co.**, 106 W. Olney Rd., Norfolk, Va. CA **$1,220,000**. 554 units Wherry Housing reconstr. conversion to public quarters for Station Personnel, OCEANA, VA. Dist. P. Wks. Office 5th Naval Dist., Room 307, Bldg. N-26, U. S. Naval Base, Norfolk, Va. CD 9/3, under LB.

▲ **FLORIDA**—State Rd. Dpt., Holland Bldg., Tallahassee,
San Marco Constr. Co., Box 1361, St. Augustine, Fla., CA **$1,117,990**, 6-lane divided limerock base with Type Ib. conc. surf. course and binder course, rein.-con. roadway slab pavement 2.474 mi. SR 13 Fed. Aid Proj. No. U. S. 86 (2), Job No. 72160-3501 and State Job No. 72160-3502, Duval Co., Bids opened July 28, awarded Sept. 25. CD 7/31, under LB.

▲† **Paul Smith Constr. Co.**, 4936 Kuhl Ave., Orlando, Fla., LB **$2,090,090**, Space Systems Launch Complex 36, Cape Canaveral Missile Test Center, Patrick Air Force Base, ENG-08-123-60-9, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Box 4970, Jacksonville, Fla. Roberts & Schaffer Co., 254 W. 54 St., New York, N. Y., archts.-engrs. Bids Sept. 22. CD 9/15.

MISSISSIPPI—State Hy. Dpt., Jackson,
H. J. Happel Co., 5501 E. Admiral, Tulsa, Okla., CA **$998,485**, 0.288 mi. bridges Int. Hy. No. 20 between Hickory and Chunky. Proj. No. I-20-2(8), Contr. II, Newton Co. Bids Aug. 25, awarded Sept. 22. CD 9/1, under LB.

▲† **McWilliams Dredging Co.**, 3308 Tulane Ave., New Orleans, La., CA **$2,410,284**, dredging Old River Outflow Channel, Concordia Parish, Inv. 60-32, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Sept. 9. CD 9/14, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,
McDowell & McDowell, 718 Murfreesboro Rd., Nashville, Tenn., CA **$1,749,946**, grade, drain 3.114 mi. Pineville-Harlon, F 151 (10) SP 7-64, Bell Co. Bids Sept. 4, awarded Sept. 24. CD 9/9, under LB.

BUILDINGS—LB & CA

▲ **J. Kennon Perrin Co.**, 5th and Cary Sts., Richmond, Va. CA **$1,169,686**, WEST WING and CENTRAL FACILITIES expan. incl. DORMITORY, FREDERICKSBURG, VA. Bd. Mgrs., Mary Washington College, Fredericksburg, Va. Awarded Sept. 22. CD 9/28.

▲ **Stone & Webster Eng. Corp.**, 1403 Roseneth Rd., Richmond, Va. CA **$30,500,000**. design and construct 4th unit POWER PLANT, PORTSMOUTH, VA. Virginia Electric & Power Co., 700 E. Franklin St., Richmond, Va. CD 9/1.

▲ **Combustion Engineering Co.**, 200 Madison Ave., New York, N. Y., CA boilers for 2nd unit Bartow POWER PLANT, Weedon Island, ST. PETERSBURG, FLA. Florida Power Corp., 101 S 5 St., St. Petersburg, Fla. CD 9/30.

▲ **Shelby Co. Bd. Educ.**, Shelbyville, Ky., rejected bids Sept. 22, 2 story, brick, 1,000 student County High School, SHELBYVILLE, KY. LB **$1,374,500**. CD 9/24. under LB.

▲† **H. K. Ferguson Co.**, 1783 E. 11th St., Cleveland, O., CA Est. over **$40,000,000**, EGCR 85,000 thermal kw. combined EXPERIMENTAL AND POWER DEMONSTRATION REACTOR designed to produce 85,000 thermal kil. for generation of 25,000 electrical kilowatts, Gallagher Bend, Clinch River, 5 mi. south of OAK RIDGE, TENN. Atomic Energy Comn., P. O. Box E, Oak Ridge, Tenn. CD 8/17.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
Mississippi to Rockies
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ind., Wabash**—BA 10/20—City, City Hall, sewer extension; incl. intercepting South Side Sanitary Sewer and North Side Sanitary and Relief Sewer, $2,089,000; sewage treatment plant and pumping or lift station incl. a package unit for Union Mills. Plans deposit $100 each. Henry Steeg & Assocs., 3338 N. Illinois St., Indianapolis, engrs. CD 8/18.

▲ **Wis., Milwaukee**—BA 10/20—City, City Hall, general construction Texas Ave. Water Station, $1,750,000. Plans deposit $25. E. A. Schmidt, city engr., Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 5/12/58.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Texas**—BA 10/15—U. S. Eng., Box 1229, Galveston, dredging 2 mi. stretch from Brady to and incl. Turning Basin at Houston, Harris Co. $1,000,000. CD 9/23/58.

▲† **Kansas**—BA About 11/3—U. S. Eng., P.O. Box 61, Tulsa, Okla., clearing, grubbing embankment and borrow areas, John Redmond Dam, Grand (Neosho) River (Strawn Reservoir), CIVENG-34-066-60-25. CD 9/29

▲† **Wyo., Cheyenne**—WS-107A-1 OPERATIONAL BASES —BA About 11/4—U. S. Eng., 1709 Jackson St., Omaha, Neb., nine Atlas Missile launching sites, WS-107A-1 Operational Bases, Francis E. Warren Air Force Base, ENG-25-066-60-13. $20,000,000-$30,000,000. CD 11/26/57.

▲† **S. D., Rapid City**—TECHNICAL FACILITIES, etc.—BA 11/16—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., WS-107A-2 technical facilities, Base T-2, incl. one launch complex at each of 3 sites, consisting of **(A)** three launch stations each with a missile silo, equipment terminal, propellant terminal and propellant sys. **(B)** one guidance facility with two antenna terminals **(C)** one underground control center **(D)** one underground powerhouse with electrical generating, heating, and air-conditioning equipment **(E)** interconnecting tunnels for utilities and personnel **(F)** utilities, roads and grading, ENG-25-066-60-1, furnishing standardized equipment for WS-107A-2 technical facilities, incl. furnishing under supply contracts standardized equipment to be installed under ENG-25-066-60-1 and under three addnl. invitations separate contracts will be awarded for furnishing the following: **(A)** propellant loading sys., equipment **(B)** air compressors **(C)** air-conditioning and refrigerating equipment **(D)** pumps **(E)** electrical generating equipment **(F)** motor control centers and unit substations **(G)** alarm sys. equipment, ENG-25-066-60-35, Ellsworth Air Force Base. CD 9/21.

BUILDINGS—BA

▲ **Tex., Mount Vernon**—PLANT, etc.—Bids Asked—Tidewater Oil Co., Mellie Esperson Bldg., Houston, natural gasoline plant $10,000,000, cycling plant unit $1,000,000, sulphur recovery plant unit $1,000,000, 8 wells (4 production, 4 gas reinjection) $300,000. CD 6/22.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul, Bids opened 9/25,
Minn.—**Park Constr. Co.**, 51 37th Ave. N.E., Minneapolis, Minn. and **Arrowhead Engrs.**, Duluth, Minn., LB **$2,033,787** (6 bidders), sand-grav. sub-base, grav. base, road mixed bit. base, surf. plant mixed bit. surf. TH No. 10 between Snelling Ave. N. and jct. TH No. 96, Ramsey Co.;
Minn.—**Hallett Constr. Co.**, Crosby, Minn., LB **$1,302,257** (12 bidders), sand-grav. sub-base, crushed rock base, etc. 4.2 mi. near Austin, Mower Co.;
Minn.—**Berghuis Constr. Co.**, Prinsburg, Minn., LB **$1,261,882** (10 bidders), sand-grav. sub-base, grav. base, road mixed bit. base and surf. and bridges between jct. CSAH 15 near Fergus Falls and jct. THs 52 and 59, Otter Tail Co. CD 9/9.

HARDWARE
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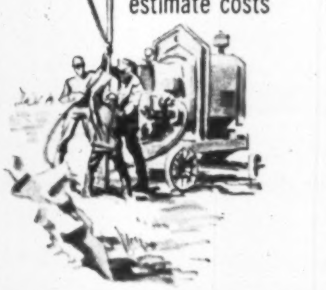

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Jacksonville, Fla. • Houston, Tex.
W. Palm Bch., Fla. • Hammond, Ind.

▲ **TEXAS**—State Hy. Comn., Austin, Tex.—**Strain Bros., Inc.**, Box 1631, San Angelo, Tex. and **E. M. Bailey Contractors**, P.O. Box 2119, Abilene, Tex., CA **$1,661,651**, flex. base, b. conc. 3.697 mi. Hy. IH 20, Proj. I 20-2 (27) 240, Nolan Co.;
Tex.—**Cecil Ruby Co., Inc.**, 907 Brown Bldg., Austin, Tex., CA **$2,017,652**, flex. base, b. conc. 8.295 mi. Hy. IH 10, Proj. I 10-4 (16) 603, Guadalupe Co.;
Tex.—**Williams Bros. Constr. Co., Inc., F. M. Reeves & Sons & Texas Bitulithic Co.**, P.O. Box 15066, Houston, Tex., CA **$3,854,878**, cement base, b. conc. 1.664 mi. Hy. U.S. 59, Proj. U 514 (31), Harris Co. Grand total $7,534,181. Bids Sept. 16. CD 9/21, under LB.

▲ **TEXAS**—State Hy. Comn., Austin, Tex.—**Cecil Ruby, Inc.**, 907 Brown Bldg., Austin, Tex., CA **$2,889,230**, flex. base, b. conc. 3.214 mi. Hy. IH 35, Proj. I 35-2 (18) 161, Bexar Co.;
Tex.—**Ivan Dement & Austin Bridge Co.**, P.O. Box 1787, Amarillo, Tex., CA **$1,290,817**, b. conc. 1.504 mi. Hy. U.S. 60 and U.S. 87, Proj. U 60 (17), Randall Co.;
Tex.—**Brown & Root, Inc.**, P.O. Box 3, Houston, Tex., CA **$747,126**, cement base, etc. 0.636 mi. Hy. IH 45, Proj. I 45-1 (28) 49, Harris Co.;
Tex.—**Austin Road Co.**, Box 1590, Dallas, Tex., CA **$1,063,334**, b. conc. 2.529 mi., Hy. IH 45, Proj. I-45-1 (31) 99, Montgomery Co.;
Tex.—**Scrivner & Richardson, Inc.**, P.O. Box 906, Aransas Pass, Tex., CA **$766,867**, base, surf. 10.89 mi. Hy. FM 521 and St. 288, Proj. S 267 (2), Brazoria Co. Grand total $6,757,374. Bids Sept. 15. CD 9/18, under LB.

▲ **Texas Gulf Constr. Co.**, 2215½ Mechanic St., Galveston, Tex., CA **$2,175,545**, reconstr. Pier 15, GALVESTON, TEX. Galveston Wharves Bd. Trustees, Galveston, Tex. Bids Sept. 14. CD 9/9.

BUILDINGS—LB & CA

▲† **Sam Patti Constr. Co.**, 1340 Admiral St., Kansas City, Mo., CA **$1,558,000**, POST OFFICE and COURT HOUSE, FORT DODGE, IOWA. General Services Admin., 2306 E. Bannister Rd., Kansas City, Mo. Bids Aug. 25. CD 8/28, under LB.

▲ **Ebasco Services, Inc.**, 2 Rector St., New York, N. Y., CA Est. **$8,000,000**, design and construct Gordon Evans POWER PLANT, West Wichita, WICHITA, KAN. Kansas Gas & Electric Co., 201 North Market St., Wichita, Kan. CD 3/27.

▲ **Cook Constr. Co.**, 5105 Gulfton St., Houston, Tex., CA **$2,000,000**, APARTMENT Proj., Post Oak Rd., HOUSTON, TEX. W. L. Cook Jr., Gulf Bldg., Houston, Tex. Lawrence D. Starnes & Assocs., 3115 Buffalo Dr., Houston, Tex., archts. CD 11/3/58.

FAR WEST

BUILDINGS—BA

▲ **Utah, Salt Lake City**—SCHOOL—BA 10/20—Granite School Dist., 3212 South State St., Granite Park Junior High School. $1,000,000. Barker, Clayton & Hess, 270 S. 12th E., archts. CD 5/8.

Wash., Seattle—GYMNASIUM — BA 10/27—Seattle School Dist. No. 1, 815 4 Ave. N., 101 x 132 ft., rein.-con., steel-truss roof gymnasium addn., $695,000. Theo. Damm, 516 James St., archt. CD 4/1.

HEAVY CONSTRUCTION—LB & CA

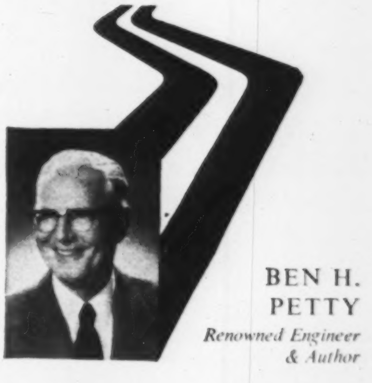
▲ **ARIZONA**—State Hy. Comn., 206 S. 17 St., Phoenix, Ariz.—**B. L. Gustafson Contractor**, 1700 E. Campbell Ave., Phoenix, Ariz., CA **$1,164,358** subgrade seal, select material aggregate base, bit. stabilized base (road mixed) and emulsified asph. seal coat, beginning approx. 4 mi. north Coconino-Yavapai County Line and extending northwesterly over new alignment of State Rte. 79 for approx. 10½ mi. toward Flagstaff Cordes Jct. Flagstaff Highway, Coconino Co.
Ariz.—**Heiskel Constr. Co.**, 1960 Grand Ave., Phoenix, Ariz., CA **$187,256**, select material, aggregate base, bit. road mix and emulsified asph. seal coat (grading and draining done under Proj. S-249 (4) beginning approx. 5½ mi. north of Sonoita and extending northwesterly over new alignment of State Rte. 83 for approx. 5.3 mi. toward Mountain View, Sonoita Mt. View Highway, Pima Co. Bids Sept. 22. CD 9/9.

▲ **ARIZONA**—State Hy. Comn., 206 S. 17 St., Phoenix, Ariz.—**Givens Constr. Co.**, P.O. Box 470, Phoenix, Ariz., CA **$1,486,045**, select material aggregate base, cement treated base b. conc. emulsified asph. seal coat and 2 interchange structures, beginning approx. ½ mi. southeast of Picacho on State Rte. 84 and extending southeasterly toward Tucson approx. 8.6 mi. Casa Grande-Tucson Highway, Pinal Co.;
Ariz.—**Fredericksen & Kasler**, P.O. Box 176, Fontana, Calif., CA **$670,646**, furnishing, placing select material aggregate base and b. conc. and furnishing, applying seal coat, furnishing, placing b. conc., furnishing, applying seal coat on existing roadway, beginning approx. 1 mi. east of Sentinel and extending easterly over U.S. Rte. 80 for approx. 7¾ mi. toward Gila Bend, Yuma-Casa Grande Highway, Maricopa Co. Bids Seot. 18. CD 9/23, under LB.

▲ **Isbell Constr. Co.**, P.O. Box 2351, Airport and South Virginia Rds., Reno, Nev., CA **$1,809,109**, 51,000 acre foot cap. Frenchman Dam, Little Last Chance Creek, Plumas Co., unit Feather River Proj., CALIFORNIA. State Dpt. Water Resources, 1120 N. St., Sacramento, Calif. Bids Aug. 26, awarded Sept. 22. CD 8/31, under LB.

BUILDINGS—LB & CA

▲ **Crown Constr. Co.**, 5059 West Pico Blvd., Los Angeles, Calif., LB **$3,692,937** (10 bidders), Sylmar



BEN H.
PETTY
Renowned Engineer & Author

THE
MAINTENANCE-COST
VOID

Much is being said these days in portland cement concrete pavement advertisements about relative maintenance costs. In comparison to asphalt pavements, they quote maintenance savings up to as high as 60 percent. And they infer that these figures come from the Bureau of Public Roads.

Well, as Al Smith used to say, "Let's look at the record." In response to an inquiry from Arvin S. Wellborn, Chief Engineer of The Asphalt Institute, Mr. F. C. Turner, Deputy Commissioner and Chief Engineer of the Bureau of Public Roads, said on June 23, 1959:

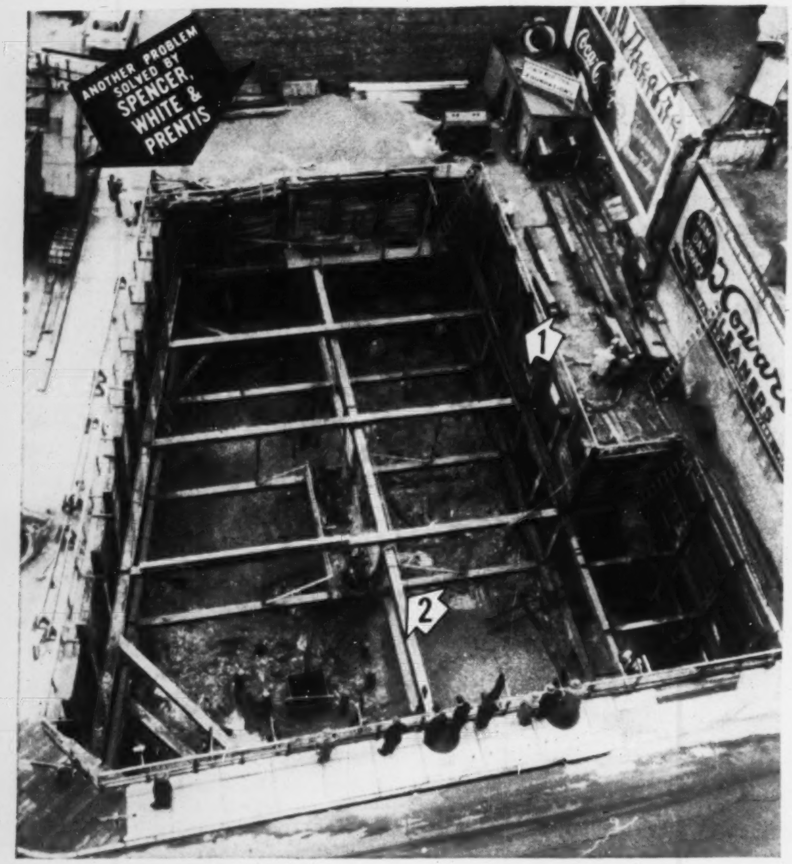
"In reply to your inquiry of June 19, 1959, concerning published data on maintenance costs per mile, **you are advised that the Bureau has never published and distributed any conclusions or findings of fact on the maintenance costs per mile of different road types. Numerous attempts have been made in the past to develop data on this important subject but no accurate or reliable results have so far been obtained.*** The material that was developed in such previous efforts by the Bureau was, in our judgment, so nonuniform in its preparation as not to warrant public distribution. Such data included numerous prorated expenditures, widely varying levels of maintenance adequacy, and numerous internal policy decisions peculiar to individual state's operations, which have perhaps had more bearing on the apparent costs than have the physical differences in construction types."

YOU BE THE JUDGE!

**Emphasis supplied.*

Ben H. Petty

Presented in
the Public Interest by
THE ASPHALT INSTITUTE



HANDLE DEEP WET EXCAVATION WITHOUT STEEL SHEETING

1. SOLDIER BEAMS AND HORIZONTAL WOOD SHEETING
2. TWO TIERS OF CROSS-LOT BRACING
BOTTOM OF EXCAVATION 30 FT. BELOW CURB

Project: Sewage pump station and office building for Hampton Roads Sanitation District Commission
Engineers: Buck, Seifert & Jost, New York City
General Contractor: W. F. Magann Corp., Portsmouth, Va.

In the center of downtown Norfolk, just a few blocks from the waterfront, a deep and unusually difficult excavation was required, in wet clay, sand and silt, almost entirely below ground water.

In view of much past experience in the area, it was assumed that steel sheeting would be required. Photo shows how the problem was solved successfully—and economically—with the use of soldier beams and horizontal wood sheeting.

Existing electrical utilities and buildings, which added to the complexities of the job, were in no way disturbed.

Perhaps our 40 years experience handling difficult foundation work can be helpful to you.

CATALOGUE ON REQUEST

Spencer, White & Prentis INC.
FOUNDATIONS · PILING · UNDERPINNING · SHORING · COFFERDAMS · SPECIAL SERVICES
10 EAST 40th STREET, NEW YORK 16, N. Y.
DETROIT: 2033 PARK AVE. • CHICAGO: 221 NORTH LaSALLE ST. • WASHINGTON, D. C.: TOWER BLDG.
PITTSBURGH: EMPIRE BLDG. • OF CANADA: 2052 ST. CATHERINE ST. WEST, MONTREAL

HIGH SCHOOL, Astoria and Borden Sts., San Fernando, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Sept. 25. CD 9/3.

▲ **Greenland Land Co.**, Box 877, Paramount, Calif., Owner Builds, **$1,619,000**, 127 DWELLINGS, Valeda Dr., Biola St., Heflin Dr., Ragan Dr., NORWALK, CALIF.

CANADA

BUILDINGS—BA

▲ **Ont., Toronto**—SCHOOL—BA 10/15—Bd. Educ., 155 College St., 3 story, Alexander Muir Senior Public School addn., renovations. $1,187,000. Fisher, Tedman & Fisher, 623 Sherbourne St., archts. C. D. Carruthers & Wallace, Consultants Ltd., 92 Yorkville Ave., engrs. CD 3/27.

HEAVY CONSTRUCTION—LB & CA

▲ **Ellis-Don Ltd.**, Box 852, London, Ont., LB **$1,153,000**, ramp parking station and market area, bounded by James, Merrick and MacNab Sts. and Market Sq., HAMILTON, ONT. Parking Authority of City of Hamilton, Rm. 620, Lister Block, Hamilton, Ont. Bids Sept. 4. CD 8/20.

▲ **S. McNally & Sons Ltd.**, Box 157, Postal Station C, Hamilton, Ont. LB **$1,865,000**, (6 bidders), storm relief sewers Contracts A and B, LONDON, ONT. City, City Hall, London, Ont. Bids Sept. 21. CD 8/28.

▲ **Sirotek Constr. Co. Ltd.**, P. O. Box 820, City View, Ottawa, Ont., CA **$1,227,721**, superstructure of laboratory for high speed wind tunnel at National Aeronautical Establishment, Ottawa, UPLANDS, ONT. Defence Constr. (1952) Ltd., 56 Lyon St., Ottawa, Ont. Bids Aug. 18. CD 8/21, under LB.

A. Janin & Co. Ltd., 7085 des Neiges Rd., Montreal, Que., CA **$959,650**, low level collector sewer, incl. 4,700 ft. 14 ft. 6 in. horseshoe sewer Riviere St. Pierre, Section 3, MONTREAL, QUE. City, City Hall, Montreal, Que. Bids July 8, awarded Sept. 17. CD 7/15, under LB.

BUILDINGS—LB & CA

▲ **Sam Hashman & Co. Ltd.**, 929 17th Ave. SW, Calgary, Alta., CA Est. **$2,000,000**, 15 story, 80,000 sq. ft., steel, rein.-con. OFFICE, CALGARY, ALTA. Tower Realty Co. Ltd., 929-17th Ave. SW, Calgary, Alta. W. G. Milne, 604 Leeson Lineham Block, Calgary, Alta., archt.

▲ **Cullen Constr. Co. Ltd.**, 6 Halsey Ave., Toronto, Ont., CA **$1,169,000**, (19 bidders), 1 story, 130 x 190 ft. and 2 story, 65 x 440 ft. precast concrete, structural steel SOUTHVIEW COLLEGIATE WINGS, Kipling St., TORONTO, ONT. North York Bd. Educ., 15 Oakburn Crescent, Willowdale, Toronto, Ont. Bids Sept. 19, awarded Sept. 18. CD 9/22, under LB.

▲ **Varamae Constr. Co. Ltd.**, 250 Morton St., Toronto, Ont. LB **$1,118,000**, 3 story, concrete frame Williamson Road SENIOR PUBLIC SCHOOL, TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont.

Riverview Constr. Co. (H. Masse), Lachute, Que., Owner Builds, **$900,000**, 100 HOUSES, Lavigne and Laliberte Properties, LACHUTE, QUE.

▲ **Clement Morin**, 79 La Treille, Cap de La Madeleine, Que. CA Est. **$2,000,000**, 3 story, bsmnt., T-shaped, 49 x 195 ft. and 52 x 72 ft. 75-bed HOSPITAL, MANIWAKI, QUE. Provincial Health Dpt., Parliament Bldgs., Quebec City, Que. Germain Chabot, 226 St. Jean St., Quebec City, Que., archt. Bourgeois & Martineau, 3365 Ridgewood Ave., Montreal, Que., engrs. Awarded Sept. 21. CD 3/16.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **Burden-Turiff Ltd.** (O. R. Burden Corp., 6702 E. 21st St., Tulsa Okla. U. S. A. and Turiff Constr. Co. London, England), CA 314 mi. 30 and 32 in. pipe line (50 mi. between Rumaila and Persian Gulf with loop lines between Kirkuk and Mediterranean) IRAQ. Iraq Petroleum Co., Bagdad, Iraq.

U. S. POSSESSIONS

BUILDINGS—LB & CA

▲† **A. C. Samford Overseas, Inc.**, 630 S. Slappey Dr., Albany, Ga., U. S. A. CA **$1,855,984**, 3 SCHOOLS and 45 replacement HOUSING UNITS, CANAL ZONE. Panama Canal Co., Balboa Heights, Canal Zone. Bids Aug. 20, awarded Sept. 22. CD 9/23, under LB.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Santa Maria**—City, City Hall, voted **$1,800,000** bonds Sept. 15, water system imprvs. CD 10/28/46.

▲† **Tex., Freeport**—Dpt. Interior, Interior Bldg., 19th and C Sts. N. W., Wash. 25, D. C., plans by W. L. Badger & Assoc., archts.-consult. engrs., 309 S. State St., Ann Arbor, Mich., 1 m.g. sea water conversion plant near here. **$1,500,000.** CD 7/24.

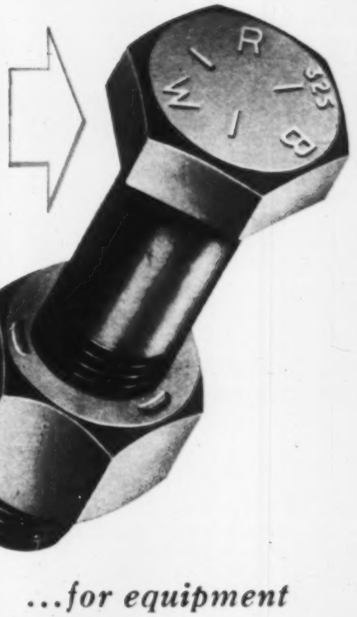
SEWERS, WASTE DISPOSAL

▲ **Calif., Santa Maria**—City, City Hall, voted **$1,500,000** bonds Sept. 15, sewers imprvs.

▲ **Conn., North Haven**—Town, Town Hall, sewage disposal plant, Sackett Point Rd. **$2,500,000.** Philip

(Continued on page 68)

new marking

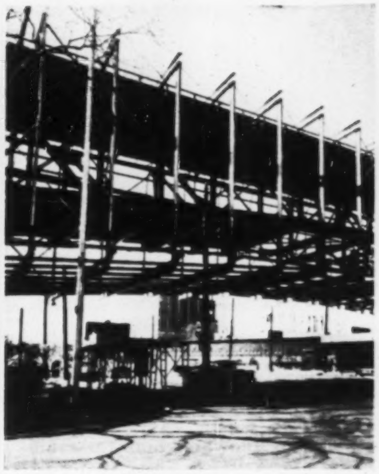


...**same** reliable quality in high strength bolts

...for buildings

No doubt about their superiority over rivets in performance and in economy. High Strength Bolts make permanently tight connections under all loading conditions; cost less installed than rivets; are approved by AISC and local codes.

...for bridges



Easier installation, permanently tight connections, and joints that are stronger in shear and in tension . . . these advantages make high strength bolts the obvious choice for the many new bridges, big and small, now being built.

...for equipment

Ore unloaders, cranes and other heavy duty equipment that take a beating from vibration and high dynamic loads do not loosen and deteriorate when joined with high strength bolts. No more need to burn out worn rivets.

LOOK not only for three radial dashes that identify high strength structural bolts . . . but also for the RB&W that assures you a product made with uniform dimensions, clean threads, and easy assembly by any method you use. And note the "325" indicating conformance to ASTM A325 specifications, as independently verified by N.Y. Testing Laboratories, Inc. Matching heavy nuts are also now identified by 3 concentric dashes.

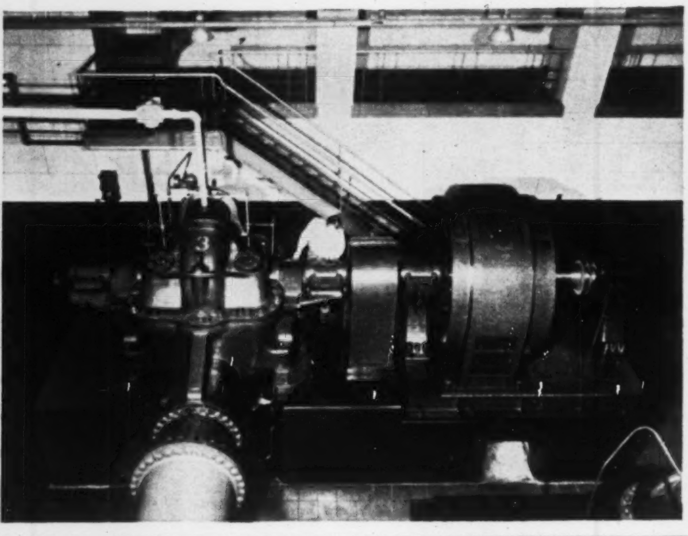
Helpful booklet on high strength bolting still available. Send for as many as you need. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

RB&W
115th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver, Fargo. **Distributors** from coast to coast.

LARGEST INDEPENDENT PRODUCER OF HIGH STRENGTH BOLTS FOR CONSTRUCTION

A case for F-M Split-Case Centrifugals!



Typical installation in Toledo averages 80.314% wire-to-water efficiency for year!

Exceptionally high and dependable efficiency with steady, low-cost operation year after year—that's the report from a host of municipalities and industries using Fairbanks-Morse pumps in their pumping stations.

Why? Ask stations like Collins Park High Service in Toledo, O., where five Fairbanks-Morse 36-in. Split-Case Centrifugal Pumps have been giving superb performance for 17 years. The No. 3 pump in the photo pumped 6,065,590,000 gallons in one year alone, handling 26.13 percent of the plant total, and consuming just 3,55 kilowatts hours per million foot gallons!

Your Fairbanks-Morse Field Engineer welcomes you to inspect many other reports like this from his files—reports revealing why no other manufacturer can match the experience of Fairbanks-Morse in providing pumps and drivers for both municipality and industry. Your F-M Field Engineer will be glad to work with your own engineers in selecting the best equipment for your specific requirements. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

See Sweet's Product Design Catalog File for complete F-M Pump Line.

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PUMPS • SCALES • ELECTRIC MOTORS • DIESEL, DUAL FUEL AND GAS ENGINES
LOCOMOTIVES • COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

(Continued from page 66)

W. Genovese, 294 Elm St., New Haven, consult. engr.

▲ **Fla., Indian Rocks**—City, City Hall, sanitary sewerage system. **$1,300,000.** Gilbert W. Clifford & Assocs., 125A 108 Ave., Treasure Island, consult. eng'rs.

▲ **Ill., Hoopeston**—City, City Hall, $500,000 bond election Oct. 13, sanitary sewerage sys. imprvs. **$1,750,000.** Warren & Van Praag, Inc., 253 S. Park St., Decatur, consult. engr. CD 9/14.

BRIDGES

▲ **O., Columbus**—City, City Hall, E. Fifth Ave., railroad underpass. **$1,339,000.** H. G. Dill Co., 2607½ N. High St., consult. engr. CD 12/7/56.

STREETS AND ROADS

▲ **Fla., Ocala**—Martin County, **$2,350,000** bond election Nov. 3, roads and bridges.

▲ **NORTHWEST TERRITORIES**—Dpt. P. Wks., 404 Hunter Bldgs., Ottawa, Ont.,

Yellowknife—road from Yellowknife east 50 mi. toward Fort Reliance, **$1,000,000;** reconstr. Mackenzie Hy. from Hay River southerly for 40 mi. **$1,200,000;** Flatt Creek Fort McPherson Rd. 50 mi., **$2,250,000,** near here. J. E. Savage, superv. engr. Dpt. P. Wks., Hys. Div. Bids in February.

EARTHWORK, WATERWAYS

▲ **Pennsylvania**—Dpt. Forests & Waters, Education Bldg., Harrisburg, dredge 9,600 ft. Lackawanna River; stabilize exist. wall with curtain of concrete piles; flood wall and concrete channel along Roaring Brook; stilling basin and imprv. exist. channels; Units 1 through 3, Scranton Flood Control Proj. Scranton, Lackawanna Co., **$1,609,250,** dredging and rectify channel, Beaver River about 1,800 ft; rolled earth levees about 1,890 ft. and drainage work, Darlington Twp., Beaver Co., **$87,880.** B. D. Murphy, c/o owner, ch. engr.

AIRPORTS

▲† **Calif., Beale Air Force Base**—TITIAN INTERCONTINENTAL BALLISTIC MISSILE BASE—U. S. Eng., 751 S. Figueroa St., Las Angeles, Titian Intercontinental Ballistic Missile Base. **$42,000,000.**

▲† **Calif., Lemoore**—NAVAL AIR STATION FACILITIES—Dist. P. Wks. Office, 12th Naval Dist., San Bruno, operational and training facilities, maintenance facilities, supply facilities, administrative facilities, troop housing, community facilities and utilities and ground imprvs., Naval Air Station. **$23,428,400** appropriated. CD 9/11.

▲† **Calif., Point Mugu** — OPERATIONAL FACILITIES, —etc.—Dist. P. Wks. Office, Eleventh Naval Dist., 1220 Pacific Hy., San Diego, operational and maintenance, research, development and test, supply, medical, administrative facilities, troop housing, community facilities and utilities and ground imprvs., Point Arguello, maintenance facilities, research, development and test facilities, ammunition storage facilities, troop housing, community facilities and utilities and ground imprvs., at various Pacific Islands, operational facilities research, development and test facilities and troop housing, Navy Air Missile Test Center, Pacific Missile Range. **$25,823,000** appropriated.

▲† **Calif., Sacramento**—OPERATIONAL MAINTENANCE FACILITIES, etc.—U. S. Eng., 1209 8th St., operational maintenance, supply and community facilities, Mather Air Force Base, **$1,491,000** appropriated.

▲† **Fla., Homestead** — OPERATIONAL FACILITIES — U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, operational facilities, Homestead Air Force Base, **$4,734,000** appropriated.

▲† **Fla., Milton**—OPERATIONAL FACILITIES, etc.—P. Wks. Office, 6 Naval Dist., Charleston, S. C., operational and training facilities Naval Auxiliary Air Station, Whiting Field, **$7,490,000** appropriated. CD 9/6/58.

▲† **Fla., Orlando**—OPERATIONAL FACILITIES—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 1, operational, maintenance, supply facilities and utilities, McCoy Air Force Base. **$6,949,000** appropriated. CD 9/24/58.

▲† **Fla., Panama City**—OPERATIONAL FACILITIES—U. S. Eng., 2301 Grant St., Mobile, Ala., operational, maintenance, supply facilities, troop housing and utilities, Tyndall Air Force Base. **$3,677,000** appropriated.

▲† **La., Alexandria**—OPERATIONAL FACILITIES, etc. U. S. Eng., 300 Broadway, Little Rock, Ark., operational, maintenance and supply facilities and utilities, England Air Force Base. **$2,315,000** appropriated.

▲† **Minn., Duluth**—OPERATIONAL FACILITIES, etc. —U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, operational, maintenance and community facilities, Duluth Municipal Airport. **$1,444,600** appropriated.

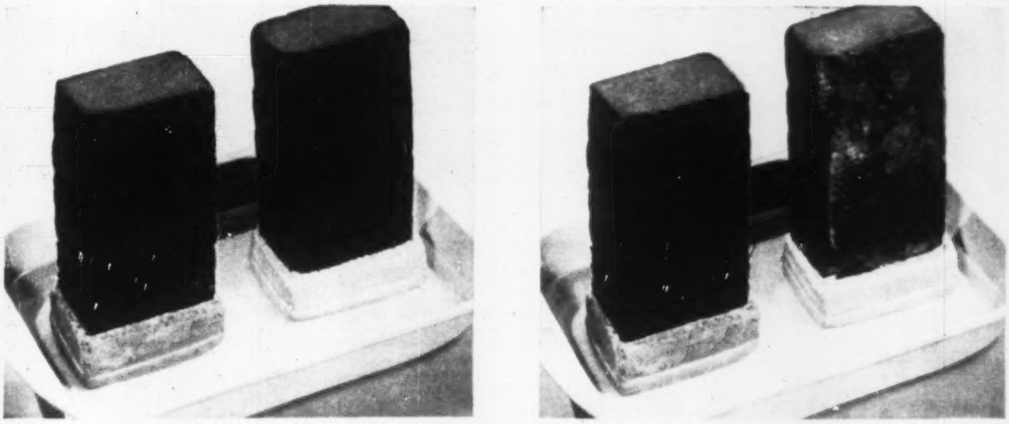
▲† **Miss., Meridian**—OPERATIONALL FACILITIES, etc. —Dpt. P. Wks., Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., operational and training, supply and administrative facilities and at Outlying Landing Field, Bravo, operational and training facilities, utilities and ground imprvs. Naval Auxiliary Air Station. **$5,049,000** appropriated. CD 11/10/55.

▲† **N. D., Grand Forks**—TRAINING FACILITIES, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., training, maintenance supply facilities, troop housing and utilities, Grand Forks Air Base. **$2,596,000** appropriated.

(Continued on page 70)

BRIXMENT MORTAR

Helps Prevent Efflorescence



To test Brixment mortar and ordinary cement-and-lime mortar for resistance to efflorescence, "cap" two brick heavily with the mortars — let harden, and keep both brick for a few weeks in a shallow pan of water, as shown. See the difference with Brixment mortar!

HERE'S WHAT CAUSES EFFLORESCENCE—AND WHY BRIXMENT MORTAR HELPS CONTROL IT

Efflorescence is an outcropping of small white crystals on brickwork. It is caused by the soluble salts which almost all masonry materials contain. When reached by water, these salts dissolve. They may then be drawn by evaporation to the surface of the wall.

Brixment helps prevent efflorescence. The air-entraining, water-repelling agent in Brixment helps to prevent water from saturating the mortar and dissolving the small amounts of salts it may contain. Brixment mortar also helps prevent water from seeping down through the wall, dissolving the salts in the brick, and carrying them to the surface.

Contractors who have used all sorts of mortars say they have far less efflorescence with Brixment.

This is only one of many advantages which have helped make Brixment the most widely-used masonry cement on the market. It will be worth your while to hear *all* the advantages of Brixment the next time a Brixment salesman calls on you. Or write direct for full details.

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In the field of
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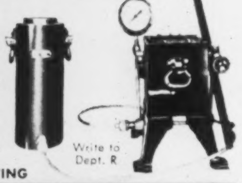

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SALES • RENTALS • CAPACITY TO 600 TONS

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THE
Morse-Starrett
WIRE ROPE CUTTER

CUTTING CAPACITIES UP TO 1 INCH 1-1/16 INCH, AND 1-1/2 INCH.

FAST
Especially designed cutting blade and dies of the finest steel assure fast cutting action.

EASY
Anyone can operate it. The hammer principle eliminates any special skill requirements.

SAFE
The enclosed cutting blade locked in the body of the cutter assures perfect safety.

PORTABLE
Models for tool kit or stationary operation. Made in three sizes.

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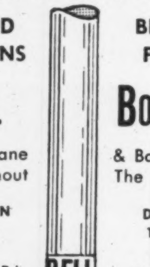

FOUNDATIONS

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WE SELL and RENT sump pumps as well as install wellpoint systems

(Continued from page 68)

▲† **N. D., Minot**—TRAINING FACILITIES, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., training, maintenance, supply facilities, troop housing, and utilities, Minot Air Force Base. **$2,452,000** appropriated.

▲† **O., Dayton**—RESEARCH, etc.—U. S. Eng., 830 W. Broadway, Louisville, Ky., research development, test and supply facilities, Wright-Patterson Air Force Base. **$9,227,000** appropriated. CD 3/12/58.

▲† **Tex., Big Spring**—OPERATIONAL FACILITIES, etc.—U. S. Eng., 100 W. Vickery St., Fort Worth, operational facilities, maintenance facilities, utilities, ground imprvs., Webb Air Force Base. **$1,679,600** appropriated.

▲† **Tex., Fort Worth**—OPERATIONAL AND MAINTENANCE FACILITIES—U. S. Eng., 100 W. Vickery, Fort Worth, operational and maintenance facilities, Carswell Air Force Base. **$1,327,000** appropriated.

AMERICANS ABROAD

▲ **Pakistan, Karachi**—OIL REFINERY—Burmah Oil Co. Ltd., Caltex (Texaco, Inc., 135 42nd St., New York, N. Y., U. S.A., and Standard Oil of California, 225 Bush St., San Francisco, Calif., U. S. A.) Royal Dutch Shell Group, Standard Vacuum Oil Co., (Standard Oil Co. of New Jersey, 30 Rockefeller Plaza, New York, N. Y., U. S. A. and Secony Mobil Oil Co., 150 E. 42nd St., New York, N. Y., U. S. A.) and Pakistana Interests, oil refinery. **$32,600,000.**

PUBLIC BUILDINGS

▲† **Ala., Fort Rucker**—OPERATIONAL and TRAINING FACILITIES—U. S. Eng., 2301 Grant St., Mobile, operational and training facilities and supply facilities **$2,233,000** appropriated. CD 9/5/58.

▲† **Ala., Huntsville**—OPERATIONAL FACILITIES—U.S. Eng., 2301 Grant St., Mobile, operational, research, development and test facilities, troop housing and utilities, **$5,218,000** appropriated.

▲† **Alaska, Fort Greely**—FAMILY HOUSING, etc.—U. S. Eng., Anchorage, family housing and community facilities **$3,322,000** appropriated.

▲† **Ariz., Fort Huachuca**—OPERATIONAL FACILITIES, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., operational, research, development and test facilities and utilities, **$5,994,500** appropriated.

▲ **Ark., Hot Springs**—AUDITORIUM—City, City Hall, **$1,350,000** bond election Nov. 3, municipal auditorium. CD 7/30.

▲† **Calif., San Diego**—OPERATIONAL FACILITIES—Dist. P. Wks. Office, Eleventh Naval Dist., 1220 Pacific Hy., operational facilities, Naval Reserve Training Center, **$4,343,000** appropriated.

▲† **Conn., Groton**—HOUSING—Public Works Officer, U. S. Naval Submarine Base, Box 400, New London, second 500-unit Capehart Housing Development for U. S. Submarine Base Personnel. **$8,000,000.** CD 6/25.

▲† **Conn., Groton**—HOUSING—Public Works Officer, U. S. Naval Submarine Base, Box 400, New London, troop housing, utilities and real estate, Naval Submarine Base, **$3,129,000** appropriated.

▲† **D. C., Wash.**—RESEARCH FACILITIES, etc.—Dist. P. Wks. Office, Potomac River Naval Command M and 8 St. S.E., research, development and test facilities, Naval Research Laboratory, **$1,591,000** appropriated.

▲ **Hawaii, Honolulu**—SCHOOLS—City and Honolulu County, Aliamanu Elementary School Addn. **$418,191;** Mokapu Elementary School at Kaneohe Marine Corps Station **$1,084,544.** Oroquois Elementary School, **$418,529.**

▲† **Ill., Savanna**—SUPPLY FACILITIES—Dpt. Army, Pentagon Bldg., Wash., D. C., supply facilities, **$1,725,000** appropriated. CD 6/29/55.

▲ **Kan., Kansas City**—HOUSING—City Housing Auth., 619 Ann Ave., plans by Chas. E. Mullin, Jr., 1401 Fairfax Trafficway, Kansas City, Kan., 390-unit Juniper Gardens Housing, incl. recreation, administration hall, playgrounds, parking. **$4,696,257.** CD 6/8.

▲† **Ky., Fort Knox**—TRAINING FACILITIES, etc.—U.S. Eng., 830 W. Broadway, Louisville, Zone 1, training, maintenance, supply and community facilities. **$2,191,000** appropriated.

▲ **Ky., Lexington**—DENTAL SCHOOL—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Meriwether Marye & Assocs., 248 Short St., 7 story, 65,000 sq. ft. brick, concrete block, rein.-con. Dental School, University of Kentucky Medical Center. **$2,500,000.** Ellerbe & Co., 1st National Bank Bldg., St. Paul, Minn., consult. engrs. Bids about Oct. 15. CD 4/15.

▲† **Md., Fort Detrick**—RESEARCH FACILITIES, etc.—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C. research, development and test facilities. **$1,437,000** appropriated. CD 10/8/51.

▲ **Mass., Clinton**—SCHOOL—Town, Supt. Schools, Chestnut St., plans by William W. Drummey Assoc., 80 Boylston St., Boston, high school Union and Chestnut Sts. **$1,500,000.** CD 7/3/58.

▲ **Minn., Mankato**—DORMITORIES—State College Bd., 41 Sherburn Ave., St. Paul, plans by E. H. Schmidt & Co., Mankato, two 300-bed dormitory units, Mankato State College, **$2,200,000.** CD 8/7.

▲ **Mont., Glendive**—SCHOOL—Dawson County High School Bldg. Dist. No. 1, voted bonds Sept. 19, high school. **$1,600,000.** CD 8/2/54.

▲ **N. J., Keansburg**—HOSPITAL—Bd. Trustees Bayshore Community General Hospital, c/o Allan Whatley, 106 Harmony Rd., East Keansburg, Keansburg, 100 bed hospital Middletown Twp., East Keansburg. **$2,000,000.**

(Continued on page 72)

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Ball bearing, Malleable Housing, Safety peep hole.

RATCHET HEAD—10 MODELS
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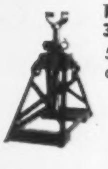
Vertical & Horizontal travel.



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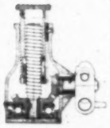
2 to 8 tons capacity. 2¾" to 7" high. 1" to 4½" Lift. Swivel head & lock screw.



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8 Models, three with aluminum alloy housings. 15 to 50 tons capacity.

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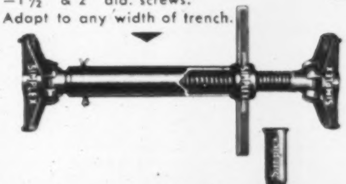

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25 & 35 ton cap.

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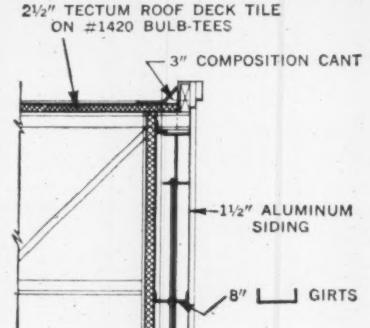
Hartland (Mich.) High School • Architect: Charles W. Lane & Assoc., Ann Arbor, Mich. • *Contractor:* Wallace Constr. Co., Farmington, Mich.


2½" TECTUM ROOF DECK TILE ON #1420 BULB-TEES
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Detail of gymnasium wall showing Tectum sidewall, roof deck, and corridor acoustical ceiling.

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(Continued from page 70)

▲† **N. Y., West Point**—HOUSING, etc.—U. S. Eng., 111 E. 16th St., New York, Zone 3, family housing and utilities, U. S. Military Academy. **$10,999,000** appropriated. CD 10/10/46.

▲† **O., Wilmington**—TROOP HOUSING—Base Procurement Office, Clinton County Air Force Base, troop housing, community facilities, utilities, Clinton County Air Force Base. **$2,252,000** appropriated. CD 4/27.

▲† **Okla., Fort Sill**—OPERATIONAL FACILITIES, etc.—U. S. Eng., Box 61, Tulsa, operational, training, maintenance facilities. **$6,415,000** appropriated.

▲ **Pa., Indiana**—SCHOOL—Indian Jct. School Dist., high school. **$2,500,000.**

▲ **Pa., Phila.**—INDEPENDENCE MALL—General State Auth., 18th and Herr Sts., Harrisburg, Independence Mall from Commerce to Arch Sts. between 5th and 6th Sts., incl. landscaping, **$2,000,000.** A. F. Jones, c/o owner, ch. engr.

▲ **Pa., Phila.**—HOUSING—Phila. Housing Auth., 42 S. 15th St., plans by Hatfield, Martin & White, 266 S. 17th St., 185 units Morton Development, Baynton and Price Sts. **$2,000,000.** CD 9/12/49.

▲ **Pa., Pittsburgh**—SCHOOL—Forest Hills Boro & Wilkins Twp. School Dists., Atlantic Ave. School, Zone 21, high school, Forest Hills Boro. **$3,000,000.** CD 9/9/54.

▲ **Pa., Pittsburgh**—HIGH SCHOOL—North Hills Joint School Dist., Perry Hy., Zone 29, high school, North Hills. **$2,500,000.** CD 4/8/58.

▲† **Tex., El Paso**—OPERATIONAL FACILITIES, etc.—U. S. Eng., Box 1538, Albuquerque, N. M., operational and training, troop housing, maintenance, supply and administrative facilities and utilites, Fort Bliss. **$8,000,000** appropriated. CD 9/8/58.

▲ **Tex., Houston**—SCHOOL—Houston Ind. School Dist., 1300 Capitol Ave., plans by John Freeman, Jr., & Travis Broesche & Assocs. & Lewis A. McGuire, 3271 W. Alabama St., elementary school, Ringgold and Lawn Sts., **$500,000;** elementary school Stancliff St. and Simms Dr., **$425,000;** plans by Golemon & Rolfe, 5100 Travis St., combination Junior-Senior High School, Harris area. **$1,750,000.** CD 5/21.

▲ **Utah, Salt Lake City**—SCHOOLS—Bd. Educ., 440 East 1st S. voted $5,500,000 bonds Sept. 15, East High School **$844,300;** Bryant Junior High School **$736,000;** Ralph A. Edward, 782 E. 21 S., archt.; Horace Mann Junior High School **$533,000;** Jordan Junior High School **$790,650;** Rob. L. Springmeyer, Zion's Saving Bank Bldg., archt.; West Side High School remodeling **$1,064,500.** CD 8/31.

▲ **Va., Powhattan**—CELLS, etc.—State Virginia, State Office Bldg., Richmond, 2 cells, infirmary, administration bldg., assembly hall for Virginia State Farm. **$1,796,150.**

COMMERCIAL BUILDINGS

▲ **Calif., Oakland**—MOTEL—James D. Harvey Co., 10 S. LaSalle St., Chicago 3, Ill., 204 units Motel, called Lord Dublin, Inc., Rte. 50 and Rte. 21, incl. swimming pool. **$2,500,000.**

▲ **Conn., Farmington and Plainville**—HOUSES—Louis E. Molans, Et. Al., 195 Ridgewood Rd., West Hartford, 400 houses "Pinnacle Acres," incl. golf course; Cook St., Plainville, **$7,200,000.**

▲ **Del., Wilmington**—APARTMENT—J. Frank Darling, 7 St. and Greenhill Ave., 210-unit apartment **$2,500,000.**

▲ **Kan., Topeka**—OFFICE—Capitol Federal Savings & Loan Assoc., 534 Kansas Ave., office Kansas Ave. **$2,000,000.**

▲ **Mo., St. Louis**—APARTMENTS, etc.—Lewis Kitchen & Paul Lashly, c/o 812 Olive St., Zone 1, revised preliminary plans by Russell, Mullgardt, Schwarz, Van Hoefen, 1620 Chemical Bldg., 721 Olive St., St. Louis 1, Mo., three 36 story apartments, 2 floors above and 3 underground for parking facilities, three 4 or 6 story commercial bldgs., one 8 to 10 story commercial bldg., 316 unit motor hotel, 3rd St. Interreginal Hy., 4th and Chestnut Sts. and Washington Ave. **$45,000,000.** CD 6/11.

▲ **N. J., Princeton**—PROVINCIALATE—Marianites Sisters of Holy Cross, c/o Thomas Henry Moran, archt., State and Jefferson Rds., 2 story, bsmnt. provincialate addn. to Our Lady of Princeton, Lawrence-Princeton Rd. **$1,500,000.**

▲ **N. J., Wayne**—ADMINISTRATIVE OFFICES—American Cynamid Co., 30 Rockefeller Plaza, New York, N. Y., plans by Vincent G. Kling, 917 Corinthian Ave., Phila., Pa., 3 story administrative offices, Indian Rd. and Berdan Ave.

▲ **N. Y., Buffalo**—SEMINARY—Catholic Diocese of Buffalo, 35 Lincoln Parkway, seminary. **$3,000,000.**

▲ **N. Y., Buffalo**—APARTMENT—Love-Weichmann Limited Profit Housing Co., 232 Delaware Ave., plans by Backus, Crane & Love, 232 Delaware Ave., 13 story apartment, Carlton and Elm Sts. **$1,600,000.**

▲ **N. Y., New York**—NURSES RESIDENCE, etc.—Beekman-Downtown Hospital, 170 William St., Zone 38, plans by Lorimer & Rose, 254 W. 54th St., Zone 19, nurses residence and hospital addn. at site. **$2,000,000.** To go ahead 1961. CD 9/26/56.

▲ **N. Y., New York**—APARTMENT—174-176 East 71st St. Corp., 120 Broadway, Zone 7, plans by Paul Resnick & Harry Green, 654 Madison Ave., Zone 21, 20 story apartment, 174-178 E. 71st St. and 1218-28 Third Ave. **$2,000,000.**

▲ **N. Y., New York**—APARTMENTS—Chester M. Goldman & Co., Inc., 277 Park Ave., Zone 17, plans by

(Continued on page 74)

ON SCHEDULE—IN SOLID ROCK!

Even after ripping up 5 feet of frost, stripping 12 feet of overburden, then blasting and digging down 14 feet in solid limestone, this 3000 foot storm sewer job is on schedule. The American 795 Series 1½ yd. Backhoe owned by Lametti & Sons, Inc., St. Paul, is helping maintain a pace of 100 feet per 8-hour day. Rock jobs require tough equipment . . . American gives you work proved excavators with smooth power, fast cycling, responsive controls to keep jobs on schedule with lowest downtime! American Distributors will give you all the data on this *complete* line!

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▲ **"BEST CRANE GOING"** says Pueblo, Colo., contractor, J. A. Park Machinery Co. about their American 30 ton Truck Crane. They say ". . . it's best in every way." You'll find tough jobs go smoother—every job goes faster with Americans handling the load!

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to 2 yds.-60 tons
LOCOMOTIVE CRANES
to 130 tons
DERRICKS-HOISTS
to 800 tons
REVOLVER CRANES
to 400 tons

AMERICAN HOIST
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St. Paul 7, Minnesota

AMERICAN HOIST
PACIFIC COMPANY
Special materials
handling equipment

CROSBY-LAUGHLIN
DIVISION
Drop forged fittings
for wire rope-chain

(Continued from page 72)

Brown & Guenther, 1860 Broadway, Zone 23, Tower Gardens Apartments, two-14 story apartments, east side Bruckner Blvd. between Ward and Stratford Aves. **$1,700,000.**

▲ **N. Y., New York**—OFFICE—Ken Industries Corp., c/o Robert J. Reily & Assocs., archts., 45 W. 45th St., New York, N. Y. office, East 58th and 59th Sts., Lexington Ave. **$8,000,000-$9,000,000.** Weiskopf & Pickworth, 2 West 45th St., structural engrs.

▲ **O., Bellbrook** — HOMES — Brookside Constr. Inc., Ferry Rd., 500-home Winterhaven development, Wilmington Pike and State Rte. 725, **$10,000,000.**

▲ **O., Mount Healthy**—HOUSES—Terris Development Co., Mercury Ave., 140 brick houses, Skyline Acres extension, **$2,325,000.** Edward Niemeier, 4484 Harrison Ave., Cincinnati, consult. engr.

▲ **Pa., Ambler** — RESIDENTIAL DEVELOPMENT — Thomas McIntyre, c/o J. T. Jackson Co., 720 Bethelehem Pike, Whitemarsh, 226 homes, residential development, Limekilin Pike St., **$5,500,000.**

▲ **Tex., Amarillo**—OFFICE—Jim Parks, Developer, 1913 Canyon Hy., Continental Bldg., plans by Wm. C. Townes & Assocs., 1208 W. 10th St., 4 story, bsmnt., 200,000 sq. ft. office, incl. swimming pool, **$3,500,000,** hard-paved auto center **$90,000,** between 8th and 9th Sts. on Hayden St.

▲ **Tex., Dallas**—OFFICE—Thos. Bolton, c/o Texas Bank Bldg., plans by Jos. M. Mills, 8215 Westchester St., 12 story, 150,000 sq. ft. office, N. Central Expressway near Bolton St. **$2,250,000.**

▲ **Tex., Dallas**—HOSPITAL, etc.—Community East, Inc. c/o Ben F. Tisinger, 2357 Gus Thomasson Rd., 200 bed hospital **$2,000,000,** 2nd phase 300 bed hospital expan. **$3,000,000,** apartments **$750,000,** motel **$500,000,** Buckner Blvd. and Ferguson Rd. 90 acre tract.

▲ **Tex., Dallas**—OFFICES—Owner, c/o Harwood K. Smith & Partners, archts., 1321 Merc. National Bank Bldg., 13 story, bsmnt., masonry, 235,000 sq. ft. Office No. 1, **$2,250,000;** 13 story, bsmnt. masonry 255,000 sq. ft. Office No. 2, **$2,500,000.**

▲ **Tex., Houston**—OFFICE—Columbia Gulf Transmission Co., Brazos St. and Dallas Ave., (subsidiary of Columbia Gas System), office 10 acres, W. Alabama Ave. **$2,500,000.**

INDUSTRIAL BUILDINGS

▲ **Ariz., Clarksdale**—PLANT—Strategic Materials Corp., c/o Webb & Knapp, Inc., 383 Madison Ave., New York, N. Y., 500 tons per day integrated steel plant and 1,000 ton per day material plant. **$15,000,000.** Zeckendorf Steel Co. will operate. Koppers Co., Koppers Bldg., Pittsburgh, Pa., consult. engr.

Ill., Franklin Park—WAREHOUSE, etc.—Fiddes-Moore & Co., 3900 N. Mannheim Rd., 1 story, 40,000 sq. ft. warehouse and office addn. **$300,000.**

▲ **Mont., Anaconda**—PLANT—Strategic Materials Corp., c/o Webb & Knapp, Inc., 383 Madison Ave., New York, N. Y., steel plant **$20,000,000.** Koppers Co., Koppers Bldg., Pittsburgh, Pa., consult. engrs.

▲ **N. J., Kearny**—PLANT—Western Electric Co., 195 Broadway, New York, N. Y., two 500,000 sq. ft., 1 story, brick, masonry merchandising plant and storage, adjoining present plant at Central Ave. **$3,000,000.** Completion 1962.

▲ **N. J., Pitman**—PLANT—Columbia Broadcasting System, Inc., 485 Madison Ave., New York, N. Y., plans by Minoru Yamasaki & Assoc., 1025 E. Maple Rd., Birmingham, Mich., record mfg. plant. **$1,500,000.**

▲ **Tenn., Sparta**—PLANT—Spartan Mfg. Co., clothing mfg. plant. **$3,000,000.**

▲ **W. Va., Weirton** — RESEARCH and DEVELOPMENT CENTER—Weirton Steel Co. (Subsidiary of National Steel Corp.) plans by Tully & Hobbs, 582 Oak St., Columbus 15, O., and Bellman, Gillett & Richards, 1600 Madison St., Toledo, O., research and development center, Cove Rd. CD 2/16.

▲ **Wis., Oak Creek**—MISSILE GUIDANCE PLANT—General Motors Corp., A. C. Spark Plug Electronics Div., 7-217 General Motors Bldg., Detroit, Mich., 1 story, 336 x 640 ft. steel precast stone sanels aluminum siding missile guidance plant addn. **$2,000,000.** Argonaut Realty Div., General Motors Corp., Argonaut Bldg., Detroit, Mich., staff engr.

▲ **Nova Scotia**—PULP MILL—Nova Scotia Pulp Ltd., (Stora Kopparbergs Bergslags A/B Falun, Sweden and Scott Paper Co., Ft. Market St., Chester, Pa., U.S.A.), pulp mill on Canso Straits, **$40,000,000.** Charles T. Main, Inc., 80 Federal St., Boston, Mass., U.S.A., consult. engrs.

UNCLASSIFIED

▲ **Ark., North Little Rock**—ELECTRICAL DISTR. SYS.—City, City Hall, voted **$2,100,000** bonds Sept. 15, rehabilitation and extension electrical distr. sys. CD 8/17.

▲† **Colo., Colorado Springs**—NORAD HEADQUARTERS—U. S. Eng., 1709 Jackson St., Omaha, Neb., excav. for NORAD Headquarters (underground) North American Air Defense Command Headquarters. **$10,000,000** appropriated. Parsons, Brickerhoff, Hall & McDonald, 51 Broadway, New York, N. Y., consult. engrs. A. J. Ryan, 1530 Glenarm, Denver, assoc. engr. for roads. Bids in November. CD 5/8.

o▲ **Louisiana**—CRUDE LINE, etc.—Columbia Gulf Transmission Co., C&I Lift Bldg., Houston, Tex., 41.1 mi. 24 in. crude line, Earth Junction, Vermillion and St. Mary Parishes, **$3,500,000** appropriated; booster station, Vermillion Parish, **$400,000.**

▲† **Mississippi and Tennessee**—PARK BRIDGES, etc.—National Park Service, Dpt. Interior, 19 and C Sts. N. W., Wash. 25, D. C.,

Miss.: 3F4, bridge, Dicks Creek.
Miss.: 3F7, overpass Mississippi Hy. 8.
Miss.: 3F9, 11, 14, 15, 17 five bridges.
Miss.: 3F7, overpass Mississippi Hy. 32.
Miss.: 3F8, 12, 13, 16, 18, five grade separations.
Miss.: 3F5, 6, two grade separations R-251-2.
Miss.: F19, grade separations R-310, **$1,609,000** appropriated.
3W-low water ford Coles Creek, **$37,500** appropriated.
3S grade, drain base course from Utica Regantown Rd. to Big Bayou Pieere, **$1,250,000** appropriated.
3R, bridges over 2 creeks R-107-1; underpass Mississippi Hy. 27, R-108-1, Six County Rd. separations R-311-1, Bridge, 12 Mile Creek R-312, **$1,147,300** appropriated.
3L and 3M1, seal coat and stabilized shoulders, R-315, **$139,000** appropriated.
Tenn: 1H, 1J, seal coat 28.39 mi. US 64 to Alabama State Line, **$67,500** appropriated.
1F, 1G, bit. surf. 15.9 mi. US 64 to Meriwether Lewis, **$387,500** appropriated, Natchez Trace Parkway.

▲ **O., Toledo**—Toledo-Lucas County Port Authority, bond election Nov. 3, development at Presque Isle site, **$4,500,000.** CD 11/16/55.

▲† **Tennessee** — PARK ROADS — National Park Service, Dpt. Interior, 19th and C Sts. N.W., Wash. 25, D. C., 8G-grading, drainage, and base course, Little River Murray Gap, R-10, Foothills Parkway. **$1,661,000** appropriated.

▲ **Tennessee**—SPUR—Louisville & Nashville R.R., H. C. Forman, ch. engr., Broad St., Louisville, Ky., 9.2 mi. spur, Benton-Calhoun area, Polk and McMinn Counties. **$2,700,000.**

▲† **Virginia and North Carolina**—PARK IMPRVS.—National Park Service, Dpt. Interior, 19th and C Sts. N.W., Wash. 25, D. C., 2FG-paving 12 mi., **$300,000** appropriated.
2J-grading, base, structures and paving, Linville Falls Spur, **$651,100** appropriated.
2JK repaving R-518 22.549 mi., **$329,900** appropriated.
2S1, grading, base, tunnel and lining French Broad River to Chestnut Cove **$1,544,600** appropriated.
2W-2 grading, stone base and tunnel, Rockinghorse Gap-Balsom Gap, **$323,700** appropriated.
2WX-US-19A and 23 grade separation, Balsom Gap, **$300,000** appropriated.
1G-paving, VA-130-US-501 2.2 mi., R-210, **$50,000** appropriated.
1N-paving US-220 Adney Gap 14.7 mi., **$375,000** appropriated.
general relocation roads and grade crossing elimination R-519, **$188,800** appropriated, Blue Ridge Parkway. CD 5/14/56.

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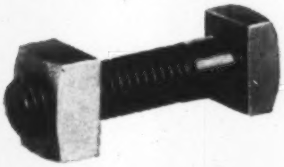
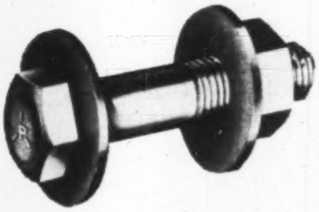


construction



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CONSTRUCTION REPORTS

Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 14 Massachusetts

▲† **Mass., Westfield**—AIR NATIONAL GUARD FACILITIES—BA On Or About 11/4—U. S. Eng., 310 State St., Springfield, Air National Guard facilities, Barnes Airport, ENG-19-016-60-20. $1,500,000-$1,600,000. Plans deposit $25. CD 12/17/58.

BUILDINGS—BA

▲ **Mass., Chicopee**—MOTOR INN—BA 10/12—Schine Enterprises, Gloversville, N. Y.; motor inn, Turnpike at Springfield Interchange. $2,500,000. Extended date. Lapidus, Kornblath, Harle & Liebman, 256 E. 49th St., New York, N. Y., archts. CD 9/8.

BUILDINGS—LB & CA

▲ **Frechette Builders, Inc.**, 179 Allyn St., Hartford, Conn., CA **$1,000,000**, Laurel RESTAURANT and BANQUET CLUB, Helicopter Landing Field, BERLIN, CONN. Albert M. Levett Co., Inc., 108 Dweight St., New Haven, Conn.; Awarded Sept. 25.

▲ **K. & S. Contr. Co., Inc.**, 1007 Farmington Ave., West Hartford, Conn., Owner Builds, **$1,296,000**, 81 HOUSES "Tumblebrook Acres," Hackmatack St., MANCHESTER, CONN. CD 8/16/56.

▲ **Green Manor Constr. Co., Inc.**, 382 W. Middle Tpk., Manchester, Conn., Owner Builds, **$1,000,000**, 100 HOUSES, Eighth Dist., MANCHESTER, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 29 New York
STREETS AND ROADS
October 14, 21 New Jersey October 29 New York
November 9 New York

▲† **Md., Andrews Air Force Base**—APRON, OPERATIONAL, etc.—BA About 11/4—U. S. Eng., 1st and Douglas Sts. N. W., Wash. 25, D. C., apron operational and road relocation, ENG-49-080-60-9(9). Plans deposit $25. Whitman, Requardt & Assoc., 1404 St. Paul St., Baltimore, archts. CD 8/6.

▲ **N. Y., New York**—RAPID TRANSIT RAILROAD—BA 11/6—New York City Transit Auth., Rm. 1310, 370 Jay St., Brooklyn, Zone 1, constr. part Rapid Transit Railroad, Section 1, Rte. 112, third section Chrystie Street Subway, Manhattan Boro. CD 8/31/45.

BUILDINGS—BA

▲ **Del., Stanton**—SCHOOL—BA 10/14—Stanton School Dist., Junior High School addn. $1,000,000. Whiteside Moeckel & Carbonell, 9 and Market Sts., Wilmington, archts. Louis H. Doane, Penna R. R. Bldg., Wilmington, engr. Plans deposit $40. CD 8/27.

▲ **N. J., Eatontown**—SCHOOL—BA 10/15—Bd. Educ., Monmouth Regional High School Dist., 72 Throckmorton Ave., high school. $1,280,000. Fred Wiedersum Asso., 65 Roosevelt Ave., Valley Stream, N. Y., archts. CD 9/16, under LB.

▲ **Pa., Harrisburg**—HEADQUARTERS OFFICE—BA 10/15—Penna State Education Assn., 400 N. 3rd St., headquarters office. $1,200,000. Plans deposit $50. Lawrie & Green, 321 N. Front St., archts. Edgar T. Clapp, 321 N. Front St., engr. CD 1/7.

▲ **Del., Wilmington**—SCHOOL—BA 10/21—Alfred I. DuPont School Dist., Faulk Rd., Junior High School, Brandywine Hundred, $2,000,000. Extended date. Whiteside Moechel & Carbonell, 9 and Market Sts., archts. CD 7/20.

▲ **Pa., Somerset**—HIGH SCHOOL—BA 10/27—Pa. State Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, high school for Somerset area School Dist., Proj. 818-662. $2,180,000. Plans deposit $50. Sorber & Hoone, Greensburg, archts. CD 10/3/58.

HEAVY CONSTRUCTION—LB & CA

▲† **Western Contg. Corp.**, Benson Bldg., Sioux City, Iowa, LB **$3,373,421**, dredging 5,119,000 cu. yd. material Delaware River between Phila., Phila. Co., Pa. and Trenton, Mercer Co., N. J. PENNSYLVANIA AND NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Sept. 16. CD 8/17.

BUILDINGS—LB & CA

▲ **North Hills Estates**, c/o Stanley Matusow, 974 Main St., Peekskill, N. Y., Owner Builds, **$1,000,000**, 50 HOUSES, MacArthur and Wheeler Rds., CORTLAND, N. Y.

▲ **J. & L. Constr. Co.**, Schwehm Bldg., Atlantic City, N. J., CA **$2,000,000**, 150 unit MOTEL, RESTAURANT, AUDITORIUM, swimming pool and ice skating rink, ATLANTIC CITY, N. J. Shelburne Hotel, c/o Max Malamut, Michigan Ave. and Boardwalk, Atlantic City, N. J. CD 6/22.

▲ **A. P. Miller, Inc.**, 3333 Arctic Ave., Atlantic City, N. J., LB **$918,827**, general contract HIGH SCHOOL,

4-D

WROUGHT IRON IN ROAD-BUILDING APPLICATIONS

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- drainage lines
- electrical conduit
- snow melting systems
- hand railings
- curb plates
- scuppers
- bridge decks
- service building piping
- pier protection
- lamp posts
- tie bars, dowels
- fasteners

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Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

4-D

WROUGHT IRON CONDUIT delivers low-cost uninterrupted service

WHERE TO USE IT:

- direct burial in earth
- burial in concrete
- submarine cables
- offshore platforms
- bridge structures
- industrial plants

HERE'S WHY:

- optimum corrosion resistance
- no internal flaking or clogging
- impact resistance
- easy fabrication
- UL approved
- sherardized, MVC-1 coating
- black or hot dip galvanized finish
- all pipe sizes available
- long random lengths available
- fewer joints necessary
- black or galvanized threads

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

athletic field, LINWOOD, N. J. Mainland Regional High School Auth., 750 Shore Rd., Linwood, N. J. CD 9/10, under LB.

▲ **Blase A. Ravikio,** Woodbury, N. J., Separate Contracts, **$2,000,000,** RESIDENTIAL DEVELOPMENT (129 homes), Collins Park area, MOORESTOWN, N. J.

▲ **U. S. Home & Development Corp.,** 45 Branford Place, Newark, N. Y., Owner Builds, **$1,500,000,** Sky Manor HOUSING, off Exit 91, Garden State Parkway, TOMS RIVER, N. J. Paul West; 911 North Main St., Toms River, N. J., archt.

▲ **Binkele Constr. Co.,** 315 W. Mifflin St., Lancaster, Pa., CA Est. **$1,000,000,** 6 story APARTMENT, LANCASTER, PA. Julius Kaufman, c/o Max M. Simon, archt., 1841 Broadway, New York, N. Y.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 16 Kentucky

STREETS AND ROADS

October 16 Kentucky

▲† Fla., Cocoa—LAUNCH FACILITIES—BA 10/15—U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, Launch Facilities, Complex 34 (Saturn) Cape Canaveral Missile Test Center, Patrick Air Force Base. ENG-08-123-60-12. CD 6/10.

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH CAROLINA** State Hy. Comn., Raleigh, Bids opened 9/29,

N. C.—**E. F. Blankenship Co.,** Salem, Va., LB **$863,132,** est. over $500,000, structures on relocation U. S. 64 from point west of Nashville to Rocky Mount U. S. 64, 8.11638 F-67 (9), Nash Co.;

N. C.—**J. Lawson Janes,** Clarksville, Va., LB **$1,047,656,** est. over $500,000, structures, bridges and approaches over Roanoke River on Interstate Rte. 95 from point approx. 380 ft. south of South Bank of Roanoke River between Roanoke Rapids and Welden, northeast to N.C. 46 approx. 3 mi. Northwest of Garysburg, 8.11707 I-95-3 (2) 175, Halifax and Northampton Counties. CD 9/18.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 9/29,

N. C.—**Rea Constr. Co.,** P.O. Box 3723, Charlotte, N. C., LB **$2,564,393,** est. over $500,000, fine grading, SABC and 9 in. concrete pavement 12.58 mi. Interstate Rt. 85 between Efland and West End of Durham By-Pass. 8.14571 I-85-3 (12) 158, Orange and Durham Counties;

N. C.—**Asheville Contg. Co.,** Box 5119, Asheville, N. C., LB **$990,755,** est. exceeds $500,000, CABC, 6 conc. binder and surf. 11.6 mi. relocation U.S. 64 from point west of Nashville to Rocky Mount. 8.11638 F-67 (9), Nash Co. CD 9/18.

BUILDINGS—LB & CA

▲ **A. R. Briggs Constr. Co.,** 526 Arch St., Macon, Ga., CA **$2,863,000,** 6 DORMITORIES, ATHENS, GA. University System Building Auth., 244 Washington St S.W., Atlanta, Ga. Bids Aug. 25, awarded Sept. 28. CD 9/1, under LB.

▲ **E. A. Scott & Sons,** Box 946, Americus, Ga., CA **$1,011,595,** LOW RENT HOUSING PROJECTS GA 183-1-183-2, WINDER, GA. City Housing Auth., Winder, Ga. Bids Aug. 6, awarded Sept. 22. CD 8/13, under LB.

▲ **Kenneth Smith Constr. Co.,** Magnolia Ave., Daytona Beach, Fla., LB **$1,458,977,** Seminole HIGH SCHOOL near SANFORD, FLA. Seminole County Bd. P. Instruction, Commercial Ave., Sanford, Fla. CD 5/5.

▲ **Gilbane Constr. Co.,** 90 Calverley St., Providence, R. I., CA **$2,000,000,** 63,000 sq. ft. OFFICE, 60,000 sq. ft. HOTEL, SARASOTA, FLA. T. L. & S. Realty Corp. Sarasota, Fla. Rader & Assocs., 611 1 Ave. N., St. Petersburg, Fla., archts.-engrs.

▲ **Tower Contracting Co. of Texas,** 10108 Harry Hines Blvd., Dallas, Tex., CA Approx. **$1,929,500,** 6 story "Tower of Baton Rouge" MOTOR HOTEL, incl. swimming pool, playgrounds, area hard-type paving, BATON ROUGE, LA. J. D. Blanton, 10108 Harry Hines Blvd., Dallas, Tex. CD 10/1.

MIDDLE WEST

BUILDINGS—BA

▲ **Wis., La Crosse**—CHURCH—BA 10/31—St. Joseph's Cathedral, 530 Main St., church, $2,000,000. E. J. Schulte, 920 E. McMillan St., Cincinnati, O., archt. CD 8/19.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Dpts. Bldg., Columbus, Zone 15,

Codell Constr. Co., 125 S. Main St., Winchester, Ky., CA **$1,058,255.** 6 conc. on waterbound macadam base course 0.782 mi. SR 7 Section 15 30, U-431(14) City of Steubenville and Steubenville Twp., Jefferson Co. Bids Sept. 15. CD 9/25, under LB.

▲ **OHIO**—Dpt. Hys., State Dpts. Bldg., Columbus, Zone 15,

Ruckman & Hansen, Inc., 3617 N. Clinton St., Fort Wayne, Ind., CA **$1,848,423,** Proj. 491 structure 0.399 mi. USR 25-0.30, ACI 75-6(9)200 (City of Toledo) Lucas Co. Bids Sept. 15. CD 9/24, under LB.

4-D

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- digestor heating coils
- raw sewage lines
- sludge lines
- compressed air lines
- guard railings
- electrical conduit
- chlorine lines
- ammonia lines
- outfall lines
- boiler piping
- weir plates and baffle plates
- smokestacks
- sludge tanks
- manhole ladder steps
- storm sewer buckets
- soil, waste, vent and downspout lines
- hot and cold water piping

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Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

▲ **Jechura Brothers**, 5700 Telegraph Rd., Toledo 12, O., CA **$1,554,625**, North Toledo Storm Sewer, TOLEDO, O. City, City Hall, Toledo, O. CD 9/22, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,
Ill.—**Orr Constr. Co.**, 27 E. 19 Place, Chicago Heights, Ill., CA **$4,999,910**, paving and retaining walls 1.32 mi. Northwest Expressway, Chicago, Cook Co.;
Ill.—**Rock Road Constr. Co.**, 5915 Rodgers Ave., Chicago, Ill., CA **$1,317,588**, paving and walls 0.54 mi. Congress St. Expressway in Chicago, Cook Co. Bids Sept. 11. Awarded Sept. 28. CD 9/15, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield,
Ill.—**Huckaba & Sons Co.**, P. O. Box 267, Mattoon, Ill., CA **$1,026,742**, paving 2.86 mi. FA Rte. 17, Mattoon, Coles Co. Bids Aug. 24. Awarded Sept. 28;
Ill.—**Hollembeak Constr. Co.**, 1266 Vermont St., Quincy, Ill., CA **$549,900**, paving 2.61 mi. FA 36 north of Quincy, Adams Co. CD 8/27, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield, Bids opened 9/29,
Ill.—**Standard Paving Co.**, 308 Washington St., Chicago, Ill., LB **$2,849,401**, (5 bidders), paving ramps on Northwest Expressway Chicago between Hubbard and Ogden, Cook Co.;
Ill.—**Gallagher Asphalt Corp.**, 181st and Indiana Sts., Thornton, Ill., LB **$112,237**, (5 bidders), bid. resurf. various routes, Cook Co. CD 9/18.

BUILDINGS—LB & CA

▲ **Louis Stile Constr. Co.**, 300 Wooster, Akron, O., Owner Builds, **$1,500,000**, 100 HOMES, Lancaster Estates, Tallkron Dr. off Income Dr., AKRON, O.

▲ **Sam Serves Bldg. Corp.**, 2135 Triplett, Akron, O., Owner Builds, **$1,750,000**, 110 HOMES, Orchard Park Section, Goodyear Heights, Kikapoo Ave. north from Eastwood Ave., AKRON, O.

▲ **A. Bentley & Sons**, 201 Belmont Ave., Toledo 2, O., CA Est. **$3,000,000**, 2 story, air-conditioned DEPARTMENT STORE with parking lot, W. Central Ave. west of Secor Rd., TOLEDO, O. Sears, Roebuck & Co., S. State and Van Buren, Chicago, Ill. CD 11/25.

▲ **Morris Handler Co., Inc.**, 2718 W. Chicago Ave., Chicago, Ill., CA **$1,250,000**, FACTORY and LABORATORY addns., alterations, 2100 W. Dempster St., EVANSTON, ILL. Owner, c/o contractor. Awarded Sept. 25. Schiller & Frank, 23 E. Jackson Blvd., Chicago, Ill., and Fridstein & Fitch, 228 N. La Salle St., Chicago, Ill., archts.

▲ **Hamilton Constr. Co.**, 9134 Lewis Ave., Temperance, Mich., Owner Builds, **$4,000,000**, 160 home HOUSING DEVELOPMENT, Jackman Rd., Bedford Twp. **$1,750,000** 170-HOME Colonial Garden Estates Jackman Rd. north of Sterns Rd., Bedford Twp.; **$1,500,000**, 130 HOMES W. Temperance Rd. off Lewis Ave., Woodstream Acres, Bedford Twp., TEMPERANCE, MICH. Grand total $7,250,000.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 16 Kansas, Minnesota   October 20, 21 Texas

STREETS AND ROADS

October 15, 16 Kansas   October 16 Minnesota
October 20, 21 Texas

▲ **Wyo., Cheyenne**—OPERATIONAL BASES—BA 11/4—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., operational bases, Francis E. Warren Air Force Base, Inv. No. ENG-25-066-60-13. CD 9/21.

BUILDINGS—BA

▲ **Minn., Mankato**—DORMITORIES—BA 10/22—State College Bd., 41 Sherburne Ave., St. Paul, two dormitories, Mankato State College. $2,200,000. E. H. Schmidt & Co., 345 S & L Bldg., archts. CD 9/22.

HEAVY CONSTRUCTION—LB & CA

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,
Ark.—**Reynolds & Williams**, 3200 Brown, Little Rock, Ark., CA **$3,407,878**, 9.541 mi. controlled access facility, grading, structures on main lanes, grading, drainage structures and surf. certain prescribed frontage roads, etc., Mississippi Co.;
Ark.—**W. D. Jeffrey Constr. Co.**, 4201 Towson, Fort Smith, Ark., CA **$1,130,861**, 1.698 mi. grading, minor drainage structures and selected material on main lanes of Interchange facility, Pulaski Co. Bids Aug. 26, awarded Sept. 22. CD 9/1, under LB.

▲† **Bushman Constr. Co.**, Box 713, Grand Island, Neb., CA **$1,539,106**, earthwork, structures incl. siphons for Culbertson Extension Canal, Station 1126 plus 00 to 1719 plus 00 and laterals, wasteways and drains, Culbertson, Hitchock and Red Willow Counties, Missouri River Proj., Spec. DC 5221, NEBRASKA. Bureau Reclamation, Dpt. Interior, McCook, Neb. Bids Sept. 3. CD 9/8, under LB.

† **Hopkins Constr. Co.**, 1340 S. Lipan St., Denver, Colo., CA **$923,367**, est. $1,013,997, access roads for NORAD Base, ENG-25-066-60-19, COLORADO SPRINGS, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Sept. 16, awarded Sept. 24. CD 9/21, under LB.

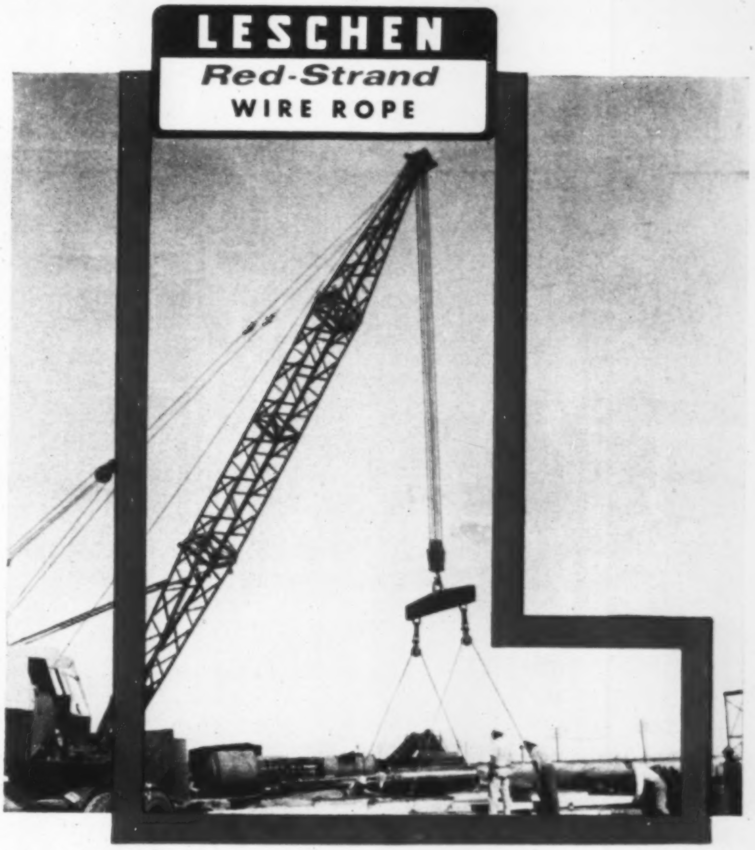
BUILDINGS—LB & CA

▲ **G. I. Johnson & Son Co.**, 848 West 79th St., Minneapolis, Minn., CA **$1,398,865**, general contract

(Continued on page 79)

when the going gets rough—

give 'em "L"



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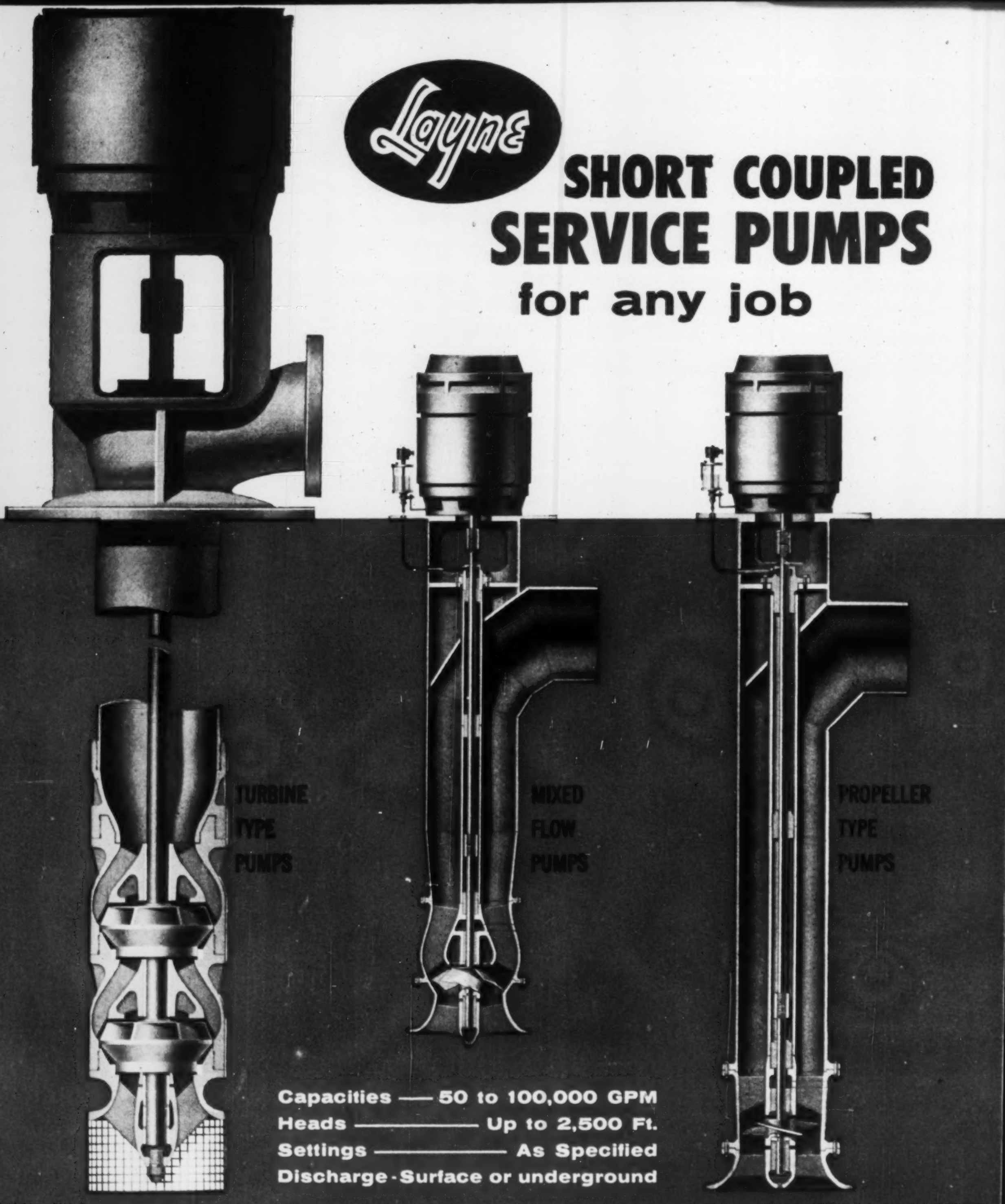

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LAYNE & BOWLER, INC., MEMPHIS
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SALES REPRESENTATIVES IN MAJOR CITIES

four ELEMENTARY SCHOOLS, BLOOMINGTON, (P. O. MINNEAPOLIS), MINN. Bd. Educ., Bloomington, Minn. Bids Sept. 22. CD 8/27;
A. Newman Heating & Plumbing, 1608 Como Ave., St. Paul, Minn., CA **$492,000**, mechanical work for four ELEMENTARY SCHOOLS; (Bloomington, Minn.).

▲ **Lutheran Bible Institute of Minneapolis**, 1619 Portland Ave., Minneapolis, Minn., rejected bids Sept. 23, group of BUILDINGS, new Campus, Hy. 55 west Hy. 100, GOLDEN VALLEY (P.O. MINNEAPOLIS), MINN. **$1,500,000**. CD 9/21.

▲ **Lovering Constr. Co.**, 59 West Kellogg Blvd., St. Paul, Minn., CA **$1,136,400**, 8 story, ground floor Y.W.C.A., incl. swimming pool, East Kellogg Blvd. and Minnesota St., ST. PAUL, MINN. Y.W.C.A., 125 East Fifth St., St. Paul, Minn. Bids Sept. 19. CD 9/24, under LB.

▲ **E. O. Luedtke**, 16250 W. Woodview Dr., Milwaukee, Wis., CA **$1,000,000**, general contract 93-unit, 30,000 sq. ft. MOTEL, University and Prior Aves., ST. PAUL, MINN. Midway Motel, Inc., c/o Myers & Aronsen, Inc., archt., Wesley Temple Bldg., Minneapolis, Minn.

▲ **L. A. Peterson**, 7135 Empire Freeway, Dallas, Tex., LB Est. **$2,000,000**, Grand Ol' Texas WESTERN TOWN, 84,491 sq. ft. main bldg., water, sanitary sewer lines, bridge, etc., DALLAS, TEX. City of Dallas (Park Bd.) and State Fair of Texas, c/o Fair Park Grounds and City Hall, Dallas, Tex. Bids Sept. 16. CD 8/21.

▲ **Turnbull, Inc.**, 4310-C Westside Dr., Dallas, Tex., CA Est. **$2,750,000**, CEMENT PLANT; CA **$365,000**, POWER PLANT, near MIDLOTHIAN, TEX. Texas Industries, Inc., 1st National Bank Bldg., Dallas, Tex. CD 8/21.

▲ **Yates Constr. Co.**, Box 1206, Dallas, Tex., CA **$2,055,228**, general constr. HIGH SCHOOL, IRVING, TEX. Irving Ind. School Dist., Irving, Tex. Bids Sept. 16. CD 9/23, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 4, 12, 19 California
STREETS AND ROADS
October 16 Arizona October 28 California
November 4, 5, 12, 13, 18, 25, 27 California

BUILDINGS—BA

▲ **Calif., Los Angeles**—SCHOOL—BA 10/20—Bd. Educ., 1425 S. San Pedro St., modernizing Fleming Junior High School North Wing and Main Bldg., classroom addn. and cafeteria bldg. $1,450,000. CD 10/28/58.

BUILDINGS—LB & CA

▲ **Lake Country Plaza**, 11687 San Vicente Blvd., Los Angeles, Calif., Owner Builds, **$1,097,830**, 103 DWELLINGS, Balsam Lake, Budlong Lake, Badger **Lane, Lake** Country Unit 5, SAN DIEGO, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 28 Ontario

BUILDINGS—BA

▲ **Sask., Saskatoon**—MEDICAL ARTS—BA 10/14—Saskatoon Medical Arts Co., c/o Webster, Forrester & Scott, archts., 209-213 CPR Bldg., medical arts bldg. $1,250,000. CD 3/27.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,
Windsor Constr. Ltd., 1603 W. 3rd Ave., Vancouver, B. C., CA **$1,459,802**, 10.32 mi. Trans-Canada Hy. Proj. 1036, Delta and Chilliwack Dist. Bids Aug. 25, awarded Sept. 23. CD 9/8, under LB.

▲ **Defence Constr. (1951) Ltd.**, 56 Lyon St., Ottawa, Ont., project cancelled air maintenance hangar, Royal Canadian Navy Air Station, Shearwater, DARTMOUTH, N. S. LB **$2,288,560**. CD 7/29, under LB.

▲ **H. J. McFarland Constr. Co. Ltd.**, Picton, Ont., LB **$1,067,168** (6 bidders), Riverside Dr. development, incl. storm sewers, grading, roads and parking area, concrete curbs and sidewalks, etc. (Scenic Dr.), OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 23. CD 9/9.

▲ **Canada Iron Foundries Ltd.**, 169 Eastern Ave., Toronto, Ont., CA **$1,133,223**, supply, install tunnel shields for University Ave. section of subway, TORONTO, ONT. Toronto Transit Comn., 1900 Yonge St., Toronto, Ont. Bids July 27. CD 8/17, under LB.

▲ **Robert McAlpine Ltd.**, Challenge Rd., Toronto, Ont., CA **$7,659,561**, Section U2, Toronto Subway, University Ave. Exten., TORONTO, ONT. Toronto Transit Comn., 1900 Yonge St., Toronto, Ont. Bids Sept. 14. CD 9/17, under LB;
McNamara Constr. Co., 42 Industrial St., Toronto, Ont., CA **$6,805,102**, Section U-3 subway structure, two station sections, Bloor St. Section Rapid Transit Subway (Toronto, Ont.).

BUILDINGS—LB & CA

▲ **Marshland Engineering Ltd.**, 154 Victoria St. S., Kitchener, Ont., Owner Builds, Est. $1,000,000, 1 story 100,000 sq. ft. ELECTRONICS PLANT, WATERLOO, ONT. CD 9/29.

(Proposal Advertisements see p. 89 to 92)

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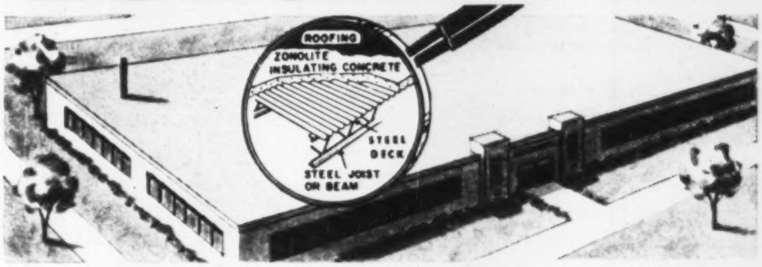

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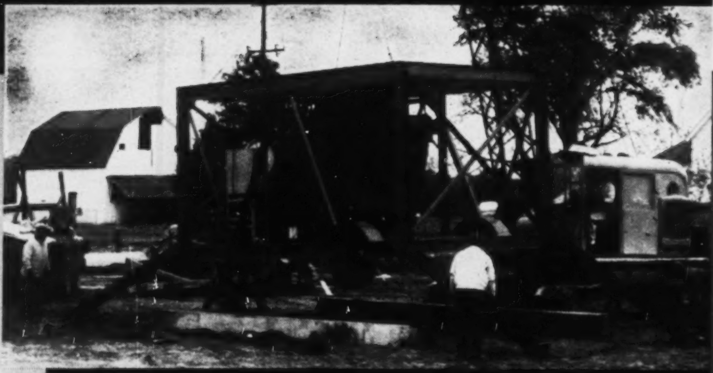
NEW-

Tow it into place

. . . Weir Contracting Co. tows their Heltzel Unitized, Mobilized Batching plant from previous job site on its own transportation wheels . . .



Set it up fast

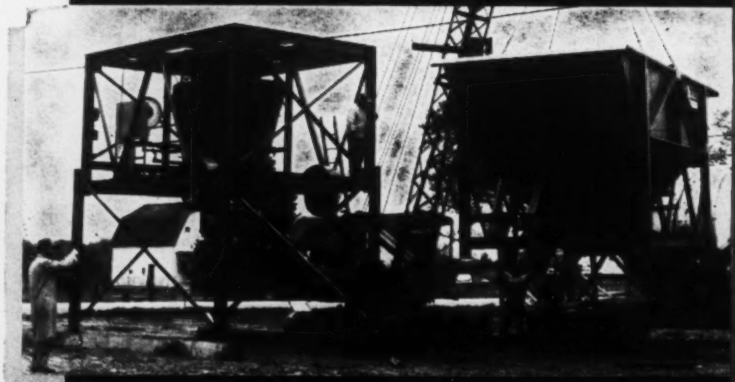
. . . batcher section is raised into position, hinged columns are lowered and bolted in place . . .

Heltzel's new 100 and 150-ton, pushbutton batching plants are now *unitized* and *mobilized* for easier moving—for faster setup—for greater savings of time and money.

The new plant consists of two self-contained mobile sections; hopper section and batcher section (including scales) with new fold-up supporting columns. Both sections have built-in wheel assemblies and towing tongues—ready to roll.

Weir Contracting Company of Detroit, Michigan reports: ". . . Our first job was in Greenbrier Meadows Subdivision, Livonia, Michigan. After the plant arrived on the site it was ready for operation in a very few hours. We found that the speed of batching will give two complete batches in thirteen seconds. On subsequent work, the plant was dismantled and ready for transportation in two hours and towed by small, single axle dump trucks to the new location. We have found that the built-in transportation wheels save us over $100.00 a move because of not having to rent trailers."

For complete data and specifications contact your nearby Heltzel representative—or write us direct.



. . . bin section is positioned and bolted on top of batcher section.

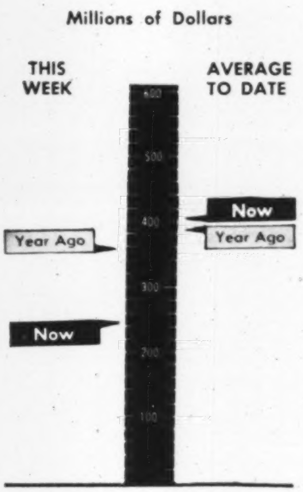
Start batching

In just a few hours this full size, high capacity, pushbutton paving plant is ready to operate!

THE HELTZEL STEEL FORM AND IRON COMPANY
WARREN, OHIO

Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

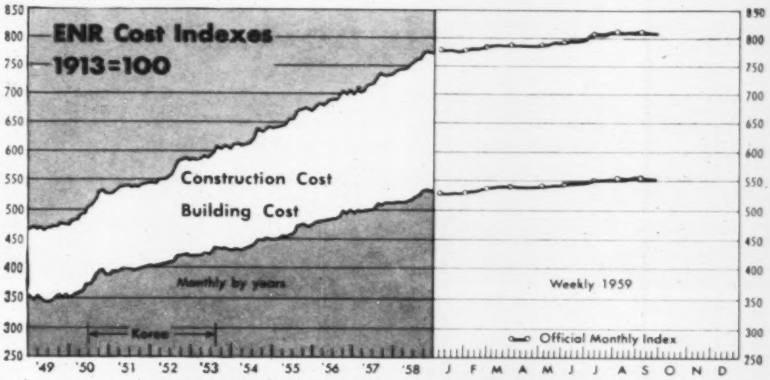
	This Week	Cum. 41 wks 1959	Chge '58-'59
	millions		%
All Heavy Constr.....	$241.5	$16,513.1	+ 4
By Ownership			
PRIVATE	141.9	8,258.9	+29
PUBLIC	99.6	8,254.2	−13
State & Municipal..	85.3	5,941.6	−15
Federal	14.3	2,312.6	− 8
By Type of Work			
PUBLIC			
Waterworks	0.7	320.1	+26
Sewerage	7.8	517.9	+ 6
Bridges*	8.8	593.8	+ 2
Highways	35.9	2,389.2	−19
Earthworks, Dams & Waterways	8.3	725.8	−19
Buildings:			
Excl. Housing	23.0	2,098.1	− 4
Housing	11.7	511.9	−47
Unclassified	5.1	1,107.2	− 8
PRIVATE			
Buildings:			
Mass Housing	70.1	3,702.2	+20
Commercial	26.2	1,751.3	+15
Industrial	25.6	2,378.8	+64
Unclassified	18.3	416.8	+21

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Oct. 1	Cum. 40 wks 1959	Chge '58-'59
	millions		%
Corporate Securities..$	76.4	$2,829.5	−33
State and Municipal:			
All Except Housing	64.2	1,654.8	− 7
Housing	....	75.2	−34
Federal Loans	1.0	112.3	−29
Federal Aid	....	3,107.2	+20
Total Nonfederal	$141.7	$10,778.9	−11
Federal Appropriations:			
Projects in U. S....	....	$3,564.1	−16
Outside U. S.......	....	4.4	−90
Total New Capital...	$141.7	$14,347.5	−13



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Oct. 1 1959	% Change from Sept. 3 1959	% Change from Oct. 2 1958
Construction Cost	811.40*	−0.14	+4.7
Building Cost	555.40*	−0.09	+3.5

* Official Monthly Index for October, 1959

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

WAGE RATES, 20-cities' average

	Oct. 1959	% Change from Sept. 1959	% Change from Oct. 1958
Common	$2.624	0	+5.9
Skilled (average 3 trades).....................	3.931	+0.3	+4.7
Bricklayers.................................	4.165	.....	+4.1
Structural Ironworkers......................	3.658	.....	+4.8
Carpenters	3.969	.....	+5.3
Equipment operators (average three types)......	3.540	+0.4	+4.6

MATERIAL PRICES, 20-cities' average

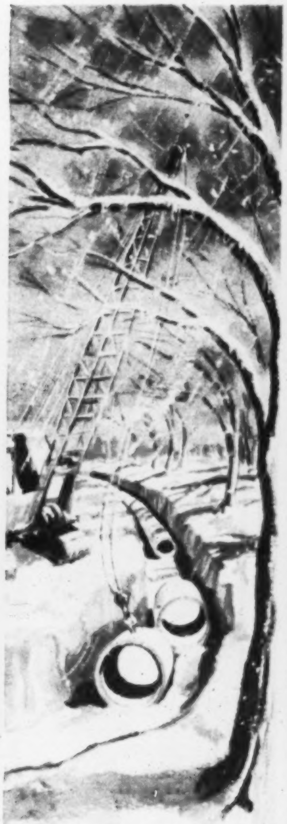
Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	124.46	−1.6	+5.0
Lumber, 2x4 Pine, per M fbm	110.30	−0.5	+6.4
Cement, bulk per bbl	3.950	−0.1	−0.1
Sand, per ton	2.467	0	−3.3
Ready-mixed concrete, per cu yd	14.075	−0.1	+1.7
Gypsum sheathing, ½"x2'x8', per Msf*	63.303	+1.0	+0.7
Fiber board sheathing, ½" sq. ed., per Msf*	77.039	+0.2	+7.8
Mineral wool insulation, 3' batts, per Msf*	68.38	0	+3.3
Crushed stone, 1½", per ton, CL	2.694	0	−5.4
Concrete blocks, sand/gravel, 8"x8"x16", each*..	250	+0.4	+9.2
	Sept. 1959	Aug. 1959	Sept. 1958
Brick, common per M	39.618	+1.0	+5.6
Lime, hydrated finishing, per ton, CL	38.707	−1.0	+4.9
Structural clay tile, 3x12x12", per M, 2,000 up*	184.69	0	+0.5
Vitrified clay sewer pipe, std 12", per ft	1.367	0	+3.7
Concrete sewer pipe, 12", per ft	1.339	+2.4	+3.6

* Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
Oct	775.30	162.53	536.53	152.51	446	129
Nov	774.12	162.28	534.96	152.07	384	111
Dec	773.81	162.22	534.79	152.02	466	435
1958 Average	**759.16**	**159.15**	**524.68**	**149.15**	**531**	**153**
1959						
Jan	778.28	163.15	536.23	152.43	460	133
Feb	778.75	163.25	537.25	152.72	472	136
Mar	781.35	163.80	540.32	153.59	586	169
Apr	784.41	164.44	542.93	154.33	532	154
May	790.37	165.69	544.44	154.76	700	202
Jun	795.16	166.69	548.35	155.87	650	188
July	806.69	169.11	551.74	156.84	671	194
Aug	811.15	170.04	554.31	157.60	509	147
Sept	812.56	170.33	555.88	158.01	545	158
Oct	811.40	170.09	555.40	157.88		

No weather problems this winter —if you plan now...



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with

PRECAST REINFORCED CONCRETE TUNNEL PIPE

Worker guides an oval-shaped section of Inner Circles pipe which the Tunnelugger has carried through the conduit already laid.

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Privately financed apartment buildings and public works help to spark . . .

Building Boom in Puerto Rico

Puerto Rico is living up to its name. For builders at least, it is a "Rich Port," now enjoying a $135 million-a-year construction boom.

Both private and public work are contributing. In private work, new hotels, medium-cost housing and luxury, cooperative-type apartment and office buildings are important factors. In the public category, public housing, military and public works spending are registering impressive totals.

A growing tourist trade is stimulating the new surge in hotel construction. Six new hotels are expected to get under way within a year, after a 10-year lag in this type of construction. The six hotels, with 1,324 rooms, will represent a $31.5-million investment.

An unquenched demand for medium-cost, private housing also makes builders optimistic. In the first half of 1959 alone, the Federal Housing Administration insured mortgages for more than 2,400 new homes with an estimated value of $22.3 million. And the Planning Board predicts a steady market for 4,000 new homes a year until 1965.

The experience of homebuilder William J. Levitt, with his "experimental" Campo Alegre project outside San Juan, bears out this demand. He sold all 276 homes in the project—at $8,200 each with no down-payment required—within a day and a half.

A big potential housing market, largely neglected by builders so far, is Puerto Rico's lower middle class—30,000 families in urban areas alone. To aid this "forgotten" class, the Planning Board is promoting mass production of a two-bedroom, $3,000 "core" home, to be finished by the tenants themselves. A pioneer, 1,900-house project of "core" homes will be started—under private contract—across the bay from San Juan.

Another boost for private construction is coming from a Latin American mortgage device called condominium—used to finance high-rise, luxury apartment and office buildings in San Juan. Condominium is little known and rarely, if ever, used in the U.S. Under this method, each tenant obtains a mortgage on his individual apartment or office unit. This is in contrast to the setup in U.S. cooperatives where one blanket mortgage finances a building.

Under construction are $8 million in condominium buildings, with another $14 million scheduled to start by the end of this year. So far, U. S. investors have adopted a "wait and see" attitude toward this financing device.

And the condominium may soon get a boost from a stateside source if the FHA rules that the co-op provisions of the National Housing Act apply to the condominium operation. Such a ruling, builders believe, would spark extensive building of middle-class condominium apartment houses, with units priced from $12,000 to $15,000 each.

Another federal housing agency, the U. S. Public Housing Administration, is spurring the boom with its current housing program in Puerto Rico. As of September 1, PHA had authorized about 9,000 units valued at $79 million. This construction will be almost completed within the next three years.

Military construction adds another important federal contribution to Puerto Rican building. At the end of June the U. S. Navy had $27 million of construction under way. The Army and Air Force spend $6 million to $10 million a year in Puerto Rico.

On the commonwealth side, the Puerto Rico Public Work Department has $33 million in construction under way and another $38 million to be committed. Government plans call for construction spending of $140 million between 1960 and 1965.

(*B&F continued p. 84*)

Private Work Surges Ahead of Public

Private contract awards for the year to date spurted ahead of public awards for the first time since 1956. Soaring 24% above August, to a September total of $961 million, private awards closed the first nine months of this year with a total of $7.93 billion.

This puts private work a shade ahead of the $7.92-billion total scored by public work, and 30% ahead of the first nine months of 1958.

And despite a 20% September drop in public works—to $577 million—total new construction business of $1.53 billion last month gives 1959 the best September on record. It is 3% above August and 14% higher than September, 1958. It even tops September of the record year 1956 by 4%. For the first nine months of 1959, total heavy construction contracts add up to $15.86 billion—5% greater than the same period in 1958.

The power behind private work's new throne is industrial building. In nine months, nearly $2.3 billion worth of new plants were awarded—66% more than the same period of 1958. For industrial building, the September total of $390 million is 62% above August and a rousing 375% above September, 1958. A number of sizable power and chemical plants awarded to contractors last month contributed strongly to the upsurge.

Despite current misgivings that higher mortgage rates will put a damper on residential construction, September mass housing awards expanded 36% over August, to $413 million. This is a healthy 86% greater than a year ago and brings the nine-month total to nearly $3.6 billion—20% over January-September of 1958. On a weekly average basis, this was the best September for mass housing awards since 1955. It's only 20% below the seasonal spring peak in May.

Commercial building is also adding its weight to private building construction volume. The September volume dips nearly a third below August to a low for 1959. But the $127-million total still tops last September by a substantial 51%.

Every type of public construction except housing declined in September. Cutbacks range from 4% for public buildings (other than housing) to 51% for bridges.

Highway awards are running 15% under last year's volume.

With highway financing now assured under the new gas and excise tax bill, states are beginning to resume awarding contracts. But the threat of controls on highway spending by the U. S. Bureau of Public Roads, plus Congressional inquiries into charges of "frills" in highway construction, may hold the comeback in check (ENR Oct. 1, p. 21).

Other types of public construction, particularly state and local work, may be hurt by higher interest rates. But so far, sewerage projects valued at nearly half a billion dollars are 7% ahead of last year and waterworks are up 27%. Public buildings (outside of housing) of nearly $2 billion are short only 2% of the total in the first nine months of 1958. School construction is a sizable part of this total.

Lower Lumber Prices Cut Construction Costs

Construction costs drift slowly downward as dips in lumber prices spread to more major markets. These dips more than offset the effects of scattered, deferred wage increases.

ENR's 20-Cities Construction Cost Index for October dropped 0.14% below the September record, to 811.4. The ENR Building Cost Index for October also dropped slightly, down 0.1% from the September record to 555.4. Index bases are 1913 = 100.

The cost outlook for the remainder of 1959 is for little change unless steel goes up. Further declines in lumber prices could offset effects of a steel hike. It's estimated the dockworkers' strike won't affect lumber prices for at least a month.

Engineering Construction Contracts for September

Four Weeks—Thousands of Dollars (000 Omitted)

	September, 1959								Nine Months Continental U. S. Cumulative			
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West	Total Continental U. S.	% Change Sept. '58 to '59	1959	1958	% Change '58 to '59	Canada Sept. 1959
Public Works, Total	**62,823**	**107,813**	**82,598**	**99,236**	**120,804**	**103,886**	**577,160**	**−39**	**7,928,928**	**8,955,170**	−11	**78,467**
Waterworks	351	1,568	2,939	2,152	6,044	3,854	**16,908**	−36	**312,315**	246,267	+27	754
Sewerage	1,294	11,408	6,964	9,144	4,611	8,923	**42,344**	−10	**497,852**	466,621	+ 7	5,101
Bridges	1,034	4,159	2,629	16,257	5,711	2,475	**32,265**	−48	**571,819**	533,849	+ 7	11,959
Earthwork, waterways	152	1,206	12,027	1,075	11,825	20,748	**47,033**	...	**700,990**	823,981	−15	1,448
Streets and roads	34,460	18,265	25,600	34,337	46,432	14,963	**174,057**	−58	**2,310,847**	2,732,594	−15	11,250
Buildings: Residential	4,468	1,219	6,471	6,744	2,075	......	**20,977**	−56	**489,375**	955,946	−49	......
Other	13,000	66,528	18,946	18,087	27,577	26,422	**170,560**	−17	**1,994,869**	2,041,366	− 2	37,934
Unclassified	8,064	3,460	7,022	11,440	16,529	26,501	**73,016**	−12	**1,050,861**	1,154,546	− 9	10,021
State & Municipal	58,805	73,464	58,542	95,675	90,622	85,810	**462,918**	−43	**5,736,327**	6,572,192	−12	54,912
Federal	4,018	34,349	24,056	3,561	30,182	18,076	**114,242**	−12	**2,192,601**	2,382,978	− 8	23,555
Private, Total	**55,805**	**233,282**	**156,970**	**229,307**	**146,949**	**138,600**	**960,913**	**+135**	**7,934,264**	**6,124,544**	**+30**	**37,279**
Bridges	......	......	......	584	......	......	**584**	....	**8,340**	8,996	− 7	248
Buildings: Industrial	13,214	51,608	108,643	131,922	34,301	50,053	**389,741**	+375	**2,275,635**	1,370,646	+66	20,884
Mass housing	28,897	150,484	24,993	74,522	67,732	66,059	**412,687**	+86	**3,562,674**	2,962,624	+20	8,424
Commercial	13,365	30,285	18,197	16,865	26,556	21,728	**126,996**	+51	**1,698,586**	1,444,375	+18	7,723
Unclassified	329	905	5,137	5,414	18,360	760	**30,905**	+49	**389,029**	337,903	+15	......
Total Sept., 1959—4 weeks	**113,628**	**341,095**	**239,568**	**328,543**	**267,753**	**242,486**	**1,538,073***	**+14**	....	....	....	**115,746**
Total Aug., 1959—4 weeks	95,113	271,320	275,869	341,445	331,975	179,258	**1,494,980***	....	....	....	....	187,730
Total Sept. 1958—4 weeks	87,871	278,320	247,489	273,929	257,834	202,678	**1,348,121**	....	....	....	....	111,761
Nine Months—1959	**987,514**	**3,433,199**	**2,788,569**	**2,848,224**	**3,201,349**	**2,604,337**	....	....	**15,863,192***	....	**+ 5**	**1,140,143**
Nine Months—1958	1,018,627	3,822,716	2,014,736	2,766,674	3,006,143	2,450,818	....	....	....	15,079,714	....	1,239,797
% Change '58 to '59	−3	−10	+38	+3	+6	+6	....	....	....	....	....	−8

*** Not Including Alaska & Hawaii**

Add: Alaska Sept. '59: 3,589 Aug. '59: 5,212 9 Mos. '59: 79,461 **Add: Hawaii Sept. '59: 7,294** Aug. '59: 1,492 9 Mos. '59: 40,818

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.*

Construction Cash

Alabama, Texas, Wisconsin to spend $1.3 billion

State legislatures in Alabama, Texas and Wisconsin adjourned after approving legislation that will provide $1.3 billion worth of construction business in the next two years.

Texas has the largest bundle of construction, with authorization for $708 million worth. In that state and Wisconsin, heaviest emphasis is on highways and new buildings. Alabama will provide for schools and highways.

Alabama will obtain another $28 million to $32 million for schools from increased sales and use taxes on automobiles, industrial machinery and tobacco products. It also passed a $100-million school-bond issue, the first ever voted by the state for schools. The 30-year bonds will be backed by sales and use taxes.

In other action, the Alabama legislature authorized a $60-million revenue-bond issue for roads, to be backed by gasoline taxes. This money will be used to match federal-aid road funds.

Texas' legislature approved a $708-million budget for construction and major repairs in the 1959-61 biennium started September 1.

Included in the budget are: highway construction, $625 million; building construction, $75 million; and building repairs and rehabilitation, $7.7 million.

Contributing to the buildings totals are: highway department building construction, $10 million; prison construction, $8 million; hospital construction, $3 million; hospital repair, $4 million.

Gov. Price Daniel is expected to recall the legislature later this year to request a boost in the gasoline tax of one cent per gallon, to six cents. Such a measure would provide an additional $30 million annually for highway construction and teachers' salaries.

Wisconsin's legislature wound up its regular session with a $13-million compromise state building bill for the two years beginning last June 30.

Gov. Gaylord Nelson claims that use of federal loans and private financing will enable the state to undertake his $44.5-million, two-year building program. It calls for spending $22.4 million by next June 30—$7.7 million of which is already authorized.

School aid will amount to about $17.5 million. Also approved: a $403 million highway budget that includes $145 million for matching federal-aid funds, $50 million for arterial highways, $52 million for other trunk highways and $137 million for local aid.

Consider the money saved when you drive a compressor instead of push it. It takes an average of 15 minutes and $2 worth of manpower to push compressor ten feet; less than five minutes, 16c to drive Pneumatractor. Don't forget "work-momentum" lost in starting up again. Multiply savings by number of times your compressors are moved daily. Available: **gasoline or diesel.**

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AGC: Help Make Labor Law Work

New law is "good," use it wisely, AGC tells employers. But it warns of efforts to weaken boycott ban.

Associated General Contractors of America has advised construction industry employers to get off on the right foot as the new labor law goes into effect.

AGC Past President Frank J. Rooney, chairman of the association's Labor Committee, said contractors should "take into account the importance of establishing sound practices at the outset in their approach to the new provisions which pertain to the construction industry."

Submitting the committee's report at the midyear meeting of the AGC governing and advisory boards last month, Mr. Rooney described the new labor law as a "good one." But he warned that its effectiveness now rests "upon sound administration in the hands of the Secretary of Labor and the general counsel of the National Labor Relations Board." He expressed the hope that both the board and the courts will reflect the "true intent of the Congress in their interpretation of the new law."

(It is generally conceded that it will take years of costly litigation to determine what that intent is. Labor and management have already begun to jockey for position under the law and hundreds of lawyers are now engaged in a search for intent favorable to the interests of their clients. Labor says it will live "within the law"—but that legally remains a matter of interpretation until the courts act.)

The provisions considered most significant by the Labor Committee are those that restrict organizational and recognition picketing and that close the loopholes in the secondary boycott section of the Taft-Hartley Act.

"Closing the loopholes" will mean that you will have protection from threats or coercion directly upon your company, and from having your employees individually induced to strike where the purpose is forcing you to cease doing business with another person," the committee said.

The committee believes closing the loopholes is perhaps of "particular interest" because of the "tremendous pressure" on Congress to legalize secondary boycotts in the construction industry. It warned, however, that this is not "the end of the fight" because House and Senate leaders are already committed to bringing the issue up again next year.

(The issue is whether a construction union that has a dispute with one contractor at a construction job on which several contractors are working should be able to strike and shut the whole project down. A Supreme Court decision in the Denver Building Trades case now prohibits this if at least one of the objects of the strike is to force one contractor—such as a union contractor—to cease doing business with another—such as a nonunion subcontractor. Reversal of that decision is one of the legislative goals of the building trades unions.)

Mr. Rooney warned association members that the building trades unions carry a "tremendous amount of political weight" because of their large membership and wide geographical distribution. Unlike groups such as the auto and garment workers, who are concentrated in limited areas, he said, the building trades unions have members in all Congressional districts.

Both Mr. Rooney and AGC Executive Director James D. Marshal called attention to the fact that the new labor law reflects a number of recommendations made by the AGC at its annual convention last year. Among them are these:

- A bill of rights for employees.
- Democracy in labor unions.
- Protection of union funds.
- Right of union members to sue union officials.
- End of the "no-man's land" in labor law.
- Outlawing recognition and organizational picketing.
- Closing loopholes in the secondary boycott provisions.
- Legalizing employer payments to jointly administered apprentice training funds.

Labor Seeks Bigger Pay Boosts

The AFL-CIO has warned management that wage restraint is not the answer to economic growth. It said last month that employers can expect the trade union movement to continue pushing for higher wages and bigger fringe benefits.

The federation predicted that current efforts of "big business" to clip the economic wings of labor will fail. "Judging from general economic conditions alone, larger wage increases appear warranted in the coming months than those typical in the first part of 1959," it said.

(The average wage increase in construction for the first half of the year was 14.3 cents, or 4.2%; for other industries the average was 4%.)

The new "get tough" policy of management, epitomized by the steel strike, the AFL-CIO said, is merely provoking "open industrial warfare" and, as it spreads, will "generate increased work stoppages." Whether this will cut down the size of wage advances remains to be seen, it added.

At its recent San Francisco convention, the federation was preparing for tougher fights at the bargaining tables. It served this notice: "We will in unity meet the bargaining pressure in whatever industries it is applied. We well know that if big business interests succeed in clubbing some unions into submission, the incentive and groundwork will be set for similar crackdowns on the others."

The AFL-CIO argument in support of substantial wage increases is two-fold. Increases are necessary, it says, to provide the expanding consumer markets essential to economic growth, and rising productivity and profits make "sizeable wage increases" possible without "undue pressure on the price structure."

The federation contends that last year's wage gains helped halt the 1958 recession and feels that many 1959 increases have been "unduly small."

Looking back over union-negotiated wage increases during the first half of this year, the AFL-CIO finds:

- The majority of the increases ranged from seven to 12 cents.
- More than 20% of the settlements granted increases of 13 cents or more.
- Only a small number of settlements —2 to 3%—provided for no wage increase. This, says the AFL-CIO, was a smaller percentage than in past years.

In the meantime, 38% of 489 reported settlements in the construction industry were for 15 cents or more, and 86% ran 10 cents or more, according to the U. S. Labor Department.

About three out of every four 1959

settlements have also provided for fringe benefit improvements, the AFL-CIO reports.

Recent emphasis, according to the federation, has been on health and welfare benefits, pension plans, paid vacations, paid holidays and severance and unemployment benefits.

The AFL-CIO foresees two general objectives in collective bargaining: steady progress for workers, and a "fair share of the wealth produced" for labor. This implies that an employer's or industry's ability to pay may gain wider acceptance as a yardstick for bargaining demands.

Behind the Steel Struggle

Collective bargaining can remain free only so long as it serves the public interest. It is not designed to handle a collision between irresistible forces and immovable objects, and it is not equipped to protect the public when such a collision occurs.

That was President Eisenhower's message to labor and management last week, when he gave the steelworkers union and steel officials a breathing spell of one week in which to re-examine and attempt to break the two and a half month deadlock in their collective bargaining.

Most of the deadlock talk has been about inflation and work rules. These reflect two basic issues that have been in the making for a long time. One is whether hourly workers should share in profits. The other: Are workers expendable tools of production? Solution of the issues could lead to revolutionary changes in wage theories and practices and in management control over the use and disposition of personnel.

The steel deadlock and the hardening attitudes it has generated are the first big indication of the industrial warfare that may continue until those issues are resolved.

Informed observers, such as Secretary of Labor James P. Mitchell, were even doubtful last week that a Taft-Hartley injunction could bring a settlement of the dispute. If such an injunction failed, all the issues could be dumped on Congress.

Big deterrent to a quick and easy settlement has been the amount of water that has gone under the bridge since the strike began July 15.

The bulk of labor's leadership is preoccupied with social progress. And the steel dispute has become all of labor's fight for the survival of a trade union movement that has the tools, the freedom and the capacity to promote and steadily improve the welfare of workers in all its aspects.

Labor says it neither opposes automation nor condones featherbedding. But it claims that it does not intend to forfeit the progress it has made in protecting the "dignity" and "security" of workers by precipitously giving up the control it has acquired over working conditions. (The steelworkers have offered to refer this issue to a joint study committee.)

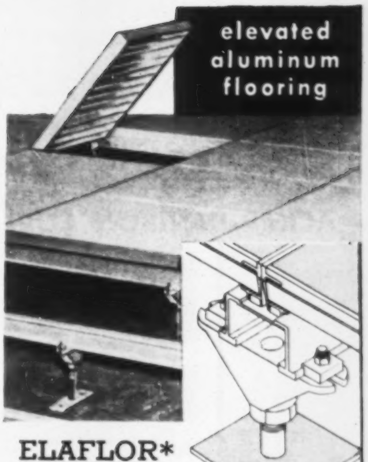
Labor also says it will not abandon its economic goal of a bigger share of the wealth it produces by agreeing, under pressure of talk about inflation, to arbitrary and one-sided limitations on wage increases. It says prices, not wages, are the cause of inflation.

For management, troubled by relative costs and fears of inflation, the steel dispute has become the crucial test of a "noninflationary" wage concept that precludes any redistribution of corporate wealth and that limits pay increases to amounts earned by greater worker efficiency. When labor sees this coupled with loss of control over work rules, it fears a return to sweatshops and piece-work pay.

Both sides have conducted such vigorous propaganda campaigns that a face-saving compromise is difficult.

The AFL-CIO has successfully rallied all its forces to fight what it calls a business conspiracy to weaken, if not to destroy, unions, and it has set up a federation-wide, multimillion-dollar strike fund to wage that war. Steel management has kept its own front solid and has drawn a number of other industries into its fight for quick action against inflation and inefficient work parctices.

The cleavage between the two positions is deep and fundamental. What happens if labor and management fail to find a solution, or at least an approach to it? The law provides a final step that could have far-reaching consequences — submission of a Presidential report and recommendations to Congress "for consideration and appropriate action."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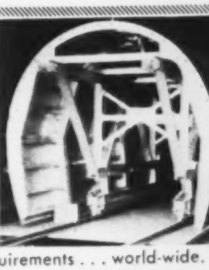
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CIJC: Good Start

Joint conference may help regain some lost contracts

Development of the Construction Industry Joint Conference earlier this year was hailed as a significant development last month by Associated General Contractors Executive Director James D. Marshall at the midyear board meeting of the association in Kansas City, Mo.

Mr. Marshall said the activities of CIJC can help the industry recover an estimated $4 billion worth of work that has slipped out from under the contract system.

The conference, in which 18 international building trades unions and six national contractor associations are now participating, was formed on April 7 under the leadership of the AGC and the international unions. Aimed at promoting "the welfare of the building and construction industry in the public interest," it generally seeks to promote the contract system and to improve performance and productivity by contractors and workers.

"Already it has accomplished much," Mr. Marshall said, "in alerting all of the [construction] unions throughout the United States to the danger of the inroads of other unions and alerting the contractors in the United States to the fact that there is a market there that can be recovered and perhaps enlarged." He referred particularly to maintenance, remodeling and restoration work.

CIJC is the industry's first firm and positive answer to the loss of industrial construction work to members of industrial unions—a trend that has been promoted by industrial union use of labor contract clauses restricting the contracting out of work.

But Mr. Marshall said the inroads on the contract system and the activities of CIJC are not limited to building construction, but extend to the highway and public works fields. "This has happened," he said, "because there are agencies at work at the present time to try to organize into the industrial type of union the maintenance crews of highway departments and various agencies that construct dams and other public works."

CIJC, according to Mr. Marshall, has prevented in several instances day labor operations by government agencies, both local and national.

The director further stated, "We hold out great hopes that this activity may even put us into the maintenance field of construction much further than we have ever been."

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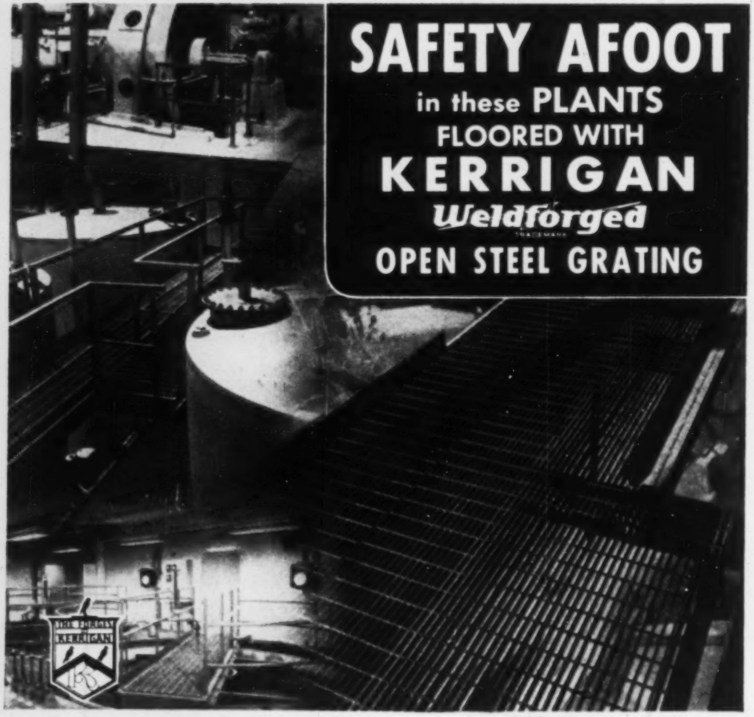

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New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 15th day of October 1959, by **Henry A. Cohen**, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Albany and Saratoga (Int. Tour. Rte. 87)	FITS 59-14	Interstate Route 502 (Alb. to Clifton Park) FIC 57-12, FISH 57-17, FISH 58-3, FISH 57-16 and FISH 58-24 Project I-87-3(21)153	14.34	Traffic Signs & Delineators	$13,500 Plans $5	$244,000
Albany, Essex & Saratoga (Rtes. 29, 310, 28N, & 32)	R.C. 59-141	Saratoga-Schuylerville, S.H. 244; Stillwater-Schuylerville, Pt. 2, S.H. 5230; Voorheesville-State Farm-Western Turnpike, Pt. 2, S.H. 1928 and Aiden Lair-Newcomb, Pt. 1, S.H. 5187		Clean. & Paint. 5 Bridges	$500 Plans $5	9,000
Essex (Rte. 9)	R.C. 59-144	Euba Mills-New Russia, S.H. 5117 New Russia-Elizabethtown, S.H. 5183	7.48	Asph. Conc. Pavt.	$18,000 Plans $5	329,000
Greene (Rte. 23A)	R.C. 59-137	Kaaterskill Clove, S.H. 5588	0.21	Asbestos Bonded Bin Type Retaining Wall	$19,000 Plans $5	344,000
Greene (Rtes. 23, 145 & 32)	FARC 59-128	Cairo-Windham, Pt. 1, S.H. 5233; Cooksburg-Cairo, Pt. 3, S.H. 8413; Cairo-Greenville, S.H. 8309; Cairo Hamlet, S.H. 954; South Cairo-Cairo, S.H. 887 and Saxton-Cairo, S.H. 9301. Project F-1159(1); F-567(4)	3.42 (0.40 Acc.)	9" Cem. Conc. Pavt., 2 @ 24' Var. Wide=2.46 Mi. Asph. Conc. Pavt.=1.36 Mi. Twin Bridge Comp. I-Beams, each 167.5', 2 Span	$83,000 Plans $5	1,505,000
Saratoga (Int. Tour. Rte. 87)	FISH 59-18	Interstate Route 502 (Clifton Park to Malta) Including Access Work on S.H. 5519 & Various Town and County Roads. Project I-IG-87-3(20)169	7.47 (4.58 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wide=7.40 Mi. Misc. Work=0.07 Mi. (Acc.=2.03 Mi. Cem. Conc. Pavt.; 1.89 Mi. Asph. Conc. Pavt.; 0.44 Mi. Bit. S.T. Pavt. & 0.22 Mi. Misc. Work). 6 Hy. Seps. Comp. Beams; 6 Sp. 343.3', 3 Sp. 127.8', 3 Sp. 136.3', 3 Sp. 130.1', 3 Sp. 126.1', & 5 Sp. 259.3'; 3 R.R. Seps. Comp. Beams; 3 Sp. 148.5', 3 Sp. 148.5', & 3 Sp. 141'	$478,000 Plans $10	8,725,000
DISTRICT No. 3, E. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga (Int. Tour. Rte. 81)	FISH 59-23M	Interstate Route 505 (Nedrow to Tully) FISH 56-11 & FISH 56-12. Project I-81-2(28)67	11.47	Misc. Work (Roadside Development Drainage, Fencing & Maint. Area)	$29,000 Plans $5	530,000
Oswego (Int. Tour. Rte. 81)	FISH 59-22	Interstate Route 505 (Parish to Jefferson County Line, Pt. 2) and Pulaski-Williamstown, Pt. 1, S.H. 1288 (Access Reconst.). Project I-IG-81-2(26)119	10.35 (4.93 Acc.)	Asph. Conc. Type 1A Pavt. (Main Line)=10.35 Mi. (Acc.=3.52 Mi. Asph. Conc. Type 1A=1.27 Mi. Bit. Mac. Type 1 & 0.14 Mi. Misc. Work); 9 Hy. Seps. Comp. I-Beams 121.5', 120.3', 298.5', 253', 131.3', 129.7', 293.8', 215' & 219.6'; 1 RR Sep. I-Beam, 251.9', 2 Brs. Comp. I-Beams 210' & 210'; Br. R.C. Twin Box 41'	$398,000 Plans $10	7,056,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Genesee (Rtes. 5 & 33)	FAC 59-15 FARC 59-134	Batavia City: Main Street Arterial Highway (Summit St. To East City Line) Batavia-Stafford, Pt. 3, S.H. 5145A Project U-706(4), F-335(4)	1.53	Asph. Conc. Pavt.	$85,000 Plans $5	1,535,000
Livingston	FASS 59-21	Nunda-Dansville, Pt. 1 (County Road) Project S-501(2)	4.44	Bit. Mac. Rd. Mix (Asph. Emul.) Pavt.=4.38 Mi. Misc. Work=0.06 Mi.	$30,000 Plans $5	562,000
Ontario (Rte. 20C)	FARC 59-138	Bristol Valley, S.H. 188 Project S-551(1)	0.22	Asph. Conc. Type 1A Pavt.=0.19 Mi. Misc. Work=0.03 Mi.	$2,100 Plans $5	39,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Chautauqua	FASS 59-23	Sinclairville: Railroad Street, County Road 49 Project S-553(1)	0.14	Bit. Surf. Treat. Pavt.=0.10 Mi. Misc. Work=0.04 Mi. Comp. I-Beam Bridge 78.3'	$7,500 Plans $5	140,000
Erie (Rte. 5)	FARC 59-89	Lake Shore-Lackawanna City, S.H. 5019 Project U-750(15)	0.68 (1.60 Acc.)	Asph. Conc. Type 2A Pavt.=0.90 Mi.; 9" Cem. Conc. Pavt. 2 @ 37' Var. Wide=1.38 Mi.; 2 Hy. Seps. Comp. I-Beams 160.5' & 160.5'; 2 Ped. Overpasses, Comp. I-Beams 124.5' & 129'; 1 Br. R.C. Twin Box 29.3'	$230,000 Plans $5	4,093,000
DISTRICT No. 6, JAMES H. THOMAS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany (Rtes. 17 & 21)	FARC 59-111	Andover Village, S.H. 5419; Andover-Alfred Station-Almond, S.H. 5512 Project F-589(7)	1.49	Asph. Conc. Pavt.=1.38 Mi.; Misc. Work=0.11 Mi. Prestressed Conc. Bridge 72' Sp. Twin R.C. Box Bridge 53.3 Sp.	$40,000 Plans $5	736,000
Chemung (Rtes. 13, 17 & 223)	FATS 59-15	Horseheads-Cayuta, Pt. 1, FASH 59-7; Horseheads-Cayuta, S.H. 5432A, Erin-Horseheads, S.H. 356, Elmira-Horseheads Connection, Pt. 2, FASH 54-15 & Horseheads Village, FASH 53-5. Project U-221(12); U-560(9)		Traffic Signs & Delineators	$1,100 Plans $5	21,000
Chemung (Rtes. 17 & 13)	FATC 59-5	Elmira-Horseheads Connection, Pt. 2, FASH 54-15 Horseheads-Cayuta, Pt. 1, FASH 59-7 Project U-221(11), U-560(8)	.....	Furnish. & Install. Traffic Control Devices at 3 Intersections	$800 Plans $5	15,000
Steuben	FASS 59-22	Purdy Creek-Shovel Hollow County Road 28 Project S-541(1)	0.61	Asph. Conc. Pavt.	$7,000 Plans $5	120,000
Yates (Rte. 245)	FARC 59-132	Middlesex-Rushville, S.H. 1772 Project S-114(2)	4.00	Asph. Conc. Pavt. Minor Repairs of 3 Bridges	$42,000 Plans $5	757,000
DISTRICT No. 7, ROBERT W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton (Rte. 3, 22 Int. Tour. Rte. 87)	FITS 59-16	Interstate Route 502 Section 7B-2 (Route 3, to Cumberland Head Road) Project I-87-4(12)310	3.54	Traffic Signs and Delineators	$4,000 Plans $5	67,000
Franklin (Rte. 95)	FARC 59-126	Moira-Bombay, S.H. 885 Hogansburg-Bombay, S.H. 820 Project S-499(2)	8.82	Asph. Conc. Type 1A Pavt.=8.80 Mi. Misc. Work=0.02 Mi.	$77,000 Plans $5	1,391,000
Franklin & St. Lawrence (Rte. 37)	FARC 59-100	Massena-Helena, Pt. 1, S.H. 1261; Raquette River-Hogansburg, Pt. 1, S.H. 1861 & Raquette River-Hogansburg, Pt. 2, St. Regis Indian Reservation-Fort Covington, Pt. 1, S.H. 8396. Project F-580(15)	5.07	Asph. Conc. Type 1A Pavt.=5.03 Mi.; Misc. Work=0.04 Mi.; 2 Hy. Seps. Comp. I-Beams 166.5' & 167.5'; 1 RR Sep. Comp. I-Beam Twin 2 Sp. 160' Each; 1 Br. Deck Girder Cant. Type Twin 5 Sp. 710' Each	$290,000 Plans $10	5,250,000
Jefferson (Int. Tour. Rte. 81)	FISH 59-19	Interstate Route 505, Section 7AB-1 (Jeff. Co. Line to S.H. 184). Project I-81-3(10)130	4.60 (5.81 Acc.)	Asph. Conc. Type 1A Pavt. (Main Line)=4.60 Mi. (Acc.=5.37 Mi. Asph. Conc. Type 1A Pavt. & 0.44 Mi. Gr. Grav. B.D.S.T. Pavt.) 3 Hy. Seps. Comp. W.F. Beams 6 Sp. 441', 4 Sp. 326' & 5 Sp. 297.5' 2 Brs. Reinf. Conc. Boxes 20' & 21'	$260,000 Plans $10	4,383,000
Jefferson (Int. Tour. Rte. 81)	FISH 59-21	Interstate Route 505 (Rift Bridge Approach) Project I-81-3(14)183	0.24	Asph. Conc. Type 1A Pavt.	$11,000 Plans $5	194,000

(Continued on the following page)

(Continued from preceding page)

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 8, KURT G. RAPER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Columbia	R.C. 59–139	Various Highways on Rtes. 9, 9H, 398, 22, 23, 66, 295 & 20	....	Tree Removal	$400 Plans $5	7,000
Putnam (Rtes. 216, 6 & 22)	R.C. 59–145	Kent-Towner, S.H. 798; Carmel-Mahopac, S.H. 1221; Croton Falls-Brewster, Pt. 2, S.H. 5438	1.32	Replacing Guide Railing	$900 Plans $5	16,000
Rockland	R.C. 59–140	Various Highways on Rtes. 9W, 340, 304, 45, 202, 59, 306 and 210	....	Tree Removal	$450 Plans $5	8,000
Ulster (Rtes. 28, 32, 209 Int. Tour. Rte. 587)	FITS 59–17	Interstate Route Connection 530 (Thruway Access at Rte. 28 to Albany Ave. & Broadway Kingston & S.H. 5173, S.T. 58–1, FISH 58–14 Project I–587–2(19), U–1009(4)	1.39	Traffic Signs and Delineators	$4,500 Plans $5	77,000
Westchester (Int. Tour. Rte. 487) (N.Y. 120 & 120A)	FITS 59–13	Interstate Route Connection 520 (Cross Westchester Expressway (White Plains & Rye Sections) FICWE 56-1 & FICWE 57–1. Project I–487–2(17)22	7.47 (19.48 Acc.)	Traffic Signs and Delineators	$20,000 Plans $5	362,000
Westchester (Rte. 120)	R.C. 59–146	Crystal Springs-Chappaqua-Millwood, S.H. 1015	0.06	Relocation of R.C. Pipe Culvert	$1,000 Plans $5	18,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome, Delaware & Otsego (Rtes. 17, 79, 26, 7B & 23)	R.C. 59–142	Windsor-Deposit, S.H. 5338; Chenango Forks-Whitney Point, S.H. 8209; Vestal-Vestal Center-Choconut, S.H. 8331; Franklin-North Franklin, S.H. 8288 and Davenport Center-Oneonta, S.H. 5455	....	Clean. & Paint. 5 Bridges	$450 Plans $5	8,000
Delaware (Rte. 97)	R.C. 59–143	Hancock-Long Eddy, Pt. 1, S.H. 5671	0.08	Bridge Repairs (Sidewalk & Curb Removal & Replacement)	$400 Plans $5	7,000
Chenango (Rte. 23)	FARC 59–106 R.C. 59–107	Norwich-South New Berlin, Pt. 1, S.H. 596; Norwich-South New Berlin, Pt. 2, & South New Berlin-New Berlin, Pt. 1, S.H. 1394. Project F-620(10)	4.16	Asph. Conc. Pavt. = 4.10 Mi. Misc. Work = 0.06 Mi. Rehabilitation of Exist. I-Beam Bridge	$42,000 Plans $5	765,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN

SUPT. OF PUBLIC WORKS

Bids: November 5, 1959.

Mains and Appurtenances for the Water Works of the City of Watervliet, New York

ADVERTISEMENT
NOTICE TO CONTRACTORS

Sealed bids will be received by the City Council of the City of Watervliet, New York, on the 5th day of November, 1959 until 8:00 o'clock P.M. at the Council Chamber in the City Hall, Watervliet, New York, for labor, materials and equipment and constructing pipe lines, cross connections, connections of new mains to existing mains for the Water Works of the City of Watervliet, New York.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the City Clerk, City Hall, Watervliet, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the City Clerk and Clerk to Council, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The City Council of the City of Watervliet, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the City of Watervliet, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the City of Watervliet, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the City of Watervliet, New York.

The work will be let as one contract and shall be in two (2) divisions as follows:

DIVISION NO. 1—General Construction for Division 1. From the 20" French's Mill water main, East of Old Loudon Road to Service Reservoir.

DIVISION NO. 2—General Construction for Division 2., Service Reservoir to Filter Plant.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

ROBERT L. DIAMOND
City Clerk and
Clerk to the Council

Dated: September 23, 1959
KEIS & HOLROYD
Consulting Engineers
Troy, New York

Bids: October 8, 1959.

Board of Education Bureau of Construction Notice Re: Prequalification Forms For Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT

The Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

general construction, plumbing and drainage (including heavy kitchen equipment), heating and ventilating, electrical work and lighting fixtures, new addition and modernization.

Junior High School 52, The Bronx. Kelly Street and Avenue St. John.

Prequalification application forms will have to be secured from and must be submitted to the Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York. Bids when advertised, will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, October 8, 1959.

JOSEPH R. WEISS,
Superintendent of Design,
Construction and Physical Plant.
Dated: September 23, 1959
Starting: Monday, September 28, 1959.
Five (5) Days.

Bids: October 20, 1959.

The Furnishing and Delivery of 440 Volt Motor Control Centers and Appurtenances for Niagara Power Project

POWER AUTHORITY OF THE STATE OF NEW YORK
NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
SPECIFICATIONS NO. PA-N-25027
NIAGARA CONTRACT NO. NP-41

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof f.o.b. the applicable storage area, University Siding, Niagara Falls, New York, of 440 volt motor control centers and appurtenances until 10:30 A.M. Eastern Daylight Saving Time on the 20th day of October, 1959, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for fifty-one (51) 440 volt motor control centers with associated equipment and services in accordance with the bidding schedule.

Delivery of the motor control centers and appurtenances will be required commencing on or before February 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set of additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-N-25027

OFFICIAL PROPOSALS

Bids: October 29, 1959

New York State Canal & Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and Canal Law and special provisions for projects financed with Federal Air Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time, on the 29th day of October, 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York						
Schenectady (Rte. 5)	R.C. 59-148	Great Western Gateway Br., S.H. 9213	0.74	Asph. Conc. Pavt. & Bridge Repair	$11,000 Plans $5	$200,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 Genesee Street, Utica 1, New York						
Madison & Oneida (Rte. 365A)	FAC 59-10 FASH 59-15 FARC 59-104	Proj. US-496(1) City of Oneida: East-West Arterial Highway; Prospect St.: Oneida East; Chittenango-Oneida Pt. 2, S.H. 726 & Chittenango-Oneida Pt. 3, S.H. 1821	2.70	Asph. Conc. Pavt.=2.70 Mi 2 Sp. WF Beam Bridge 105	$72,000 Plans $5	1,310,000
Montgomery (Rte. 5)	FAC 59-11 FASH 59-17 FARC 59-108	Proj. U-F-349(12) City of Amsterdam: East-West Arterial Highway; Amsterdam East: Rte. 5 Connection; Mohawk River Turnpike, Amsterdam-Cranesville, S.H. 180 & Hoffman-Cranesville, S.H. 5126	5.28	Demolition of Bldgs.	$5,000 Plans $5	95,000
DISTRICT No. 3, E. E. Towlson, Acting District Engineer, 333 E. Washington St., Syracuse, New York						
Cayuga (Rte. 90)	FARC 59-61	Proj. F-598(4) Aurora-Union Springs Pt. 2, S.H. 1690	4.59	Asphalt Concrete Pavt. Type 1A	$48,000 Plans $5	861,000
Onondaga & Oswego (Int. Tour. Rte. 81)	FITS 59-18	Proj. I-81-2(37)84 Int. Rte. 505, Syracuse (Willow St.) to Parish FIC 56-11, FAC 54-3, FASH 54-3, FISH 57-6, FISH 57-8, FISH-3, FISH 58-9 & FISH 58-26	26.40	Traffic Signs & Delineators	$9,000 Plans $5	166,000
Oswego	U.S. 101	Lock 0-7, Oswego Canal, City of Oswego		New Gates, Lowering Upper Sills & Misc. Work	$5% of Bid Plans $10	(Confidential)
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe (Int. Tour. Rte. 490)	FIC 59-16	Proj. I-490-2(12) Interstate Rte. Connection 580 (Rochester City: Eastern Expressway Pt. 1)	0.76	Demolition of Bldgs.	$4,500 Plans $5	84,000
Monroe	FAC 59-17	Proj. U-1089(12), U-231(17) Rochester City: Inner Loop (North St. to George St.)	0.11	Demolition of Bldgs.	$3,000 Plans $5	56,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court St., Buffalo 2, New York						
Chautauqua	FASS 59-24	Proj. S-554(1) French Creek-Marks, Co. Rd. 322	0.32	Bit. Double Surf. Treat Pavt. 2 Sp. Comp. I-Beam Bridge 147'	$8,000 Plans $5	155,000
Niagara	M 59-11	Bridge E-222 Erie Canal, Gasport		Reconstruction of 2-Story Frame Control House	$1,000 Plans $10	18,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick St., Binghamton, New York						
Broome (Rte. 26)	RC 59-149	Union-Maine, S.H. 275, Maine, S.H. 374 & Maine-Glen Aubrey, S.H. 1449		Removal of 43 Trees	$220 Plans $5	1,000
DISTRICT No. 10, M. E. Gould, District Engineer, 325 W. Main St., Babylon, L. I., N. Y.						
Nassau (Rtes. 25 & 107)	FARC 59-133	Proj. US-377(2); US-500(2); U-1000(6) Massapequa-Glen Cove, S.H. 9017; Jericho-Oyster Bay, S.H. 9021; Jericho Turnpike, S.H. 9020 & Jericho Turnpike-Plainview Rd., S.H. 436	3.04 (0.88 Acc.)	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide=2.28 Mi. Misc. Work=0.76 Mi. (9" Cem. Conc. Pavt. with Carbon Black=0.88 Mi. Acc.) 4 Sp. Comp. WF I-Beam Hy. Sep. 206'	$165,000 Plans $5	2,995,000
Nassau (Rte. 107)	FARC 59-151	Proj. US-377(3) Massapequa-Glen Cove, S.H. 9017	0.66	Drainage Work=0.55 Mi. Misc. Work=0.11 Mi.	$15,000 Plans $5	261,000
Nassau & Suffolk	FALIE 59-2	Proj. U-862(23) Long Island Expressway (South Oyster Bay Rd. to Nassau-Suffolk County Line) Cont. No. 6	3.27 (4.04 Acc.)	9" Cem. Conc. Pavt. with Carbon Black 2@ 36' Var. Wide=3.17 Mi.; Misc. Work=0.10 Mi. (Acc Ramps=1.86 Mi. Cem. Conc. Pavt. & Service Rds.=2.18 Mi. Asph. Conc. Pavt.); 4 Hy. Seps. R.C. Rig. Frames 49.2', 155.2', 139.6', 79.9', 2 Hy. Seps. Comp. Weld. Steel Plate Girders 113.2', 113.5', 2 Hy. Seps. Comp. Steel Stringers 89.9', 149.6'	$180,000 Plans $10	8,745,000
		Total 14 Contracts (12 Hys. & 2 Canal)	52.82			$14,950,000

Any projects in this letting that are on the Federal Air highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: November 24, 1959

Miscellaneous Repairs, Replacements and Additions Water Works Filter Plant City of Watervliet, New York

ADVERTISEMENT
NOTICE TO CONTRACTORS
FILTERS, COAGULATING AND SETTLING BASIN ADDITIONS
EXTENSION OF FILTER PLANT BUILDING

Sealed bids for two (2) open type rapid sand filters of about one million gallons per day total capacity to be added to present filter plant, extension of present filter plant building, additional piping interior and exterior, valves, repair or replacement of valves and equipment, washing, screening, replacement or addition of filter sand and gravel, 10 controllers to replace present units, meter and miscellaneous repairs to or replacement of plant equipment, two (2) chemical mixers, coagulators and settling basins with all controls, piping, valves, motors, mechanical equipment and appurtenances for the Water Works System of the City of Watervliet, New York, will be received at the Council Chamber in the City Hall, Watervliet, New York, until 8:00 o'clock P.M. Eastern Standard Time on November 24, 1959, and then at said City Hall publicly opened and read aloud.

The Information for Bidders, Form of Contract, Form of Bid, Plans, Specifications and Performance Bond may be examined at the office of the City Clerk and Clerk of the Council at the City Hall, Watervliet, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the City Clerk and Clerk to Council, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The City Council of the City of Watervliet, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the City of Watervliet, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, with five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

Contracts will be awarded to the responsible bidder or bidders offering the proposition or propositions most advantageous to the best interests of the City.

The successful bidder will be required to furnish a performance bond satisfactory to the City of Watervliet, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the City of Watervliet, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

ROBERT L. DIAMOND
City Clerk and
Clerk to the Council

Dated: September 23, 1959
KEIS & HOLROYD
Consulting Engineers
Troy, New York

Bids: October 22, 1959.

For Construction of Niagara Parkway Viaduct Section Cleveland Avenue to Bellevue Avenue, Niagara Falls, Niagara County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
SPECIFICATIONS NO. 627.02
NIAGARA CONTRACT NO. N-16

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the Construction of Niagara Parkway Viaduct Section, Cleveland Avenue to Bellevue Avenue, located in Niagara Falls, Niagara Falls, Niagara County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 22nd day of October, 1959 at the Authority's Office, 18th Floor, The Coliseum Tower, 19 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are:
Estimated:

43,500	cubic yards	Excavation
7,741	cubic yards	Concrete
2,420	linear feet	Reinforced Concrete Culvert Pipe, 12" to 42" Dia.
1,836,000	pounds	Bar Reinforcement for Structures
4,340,000	pounds	Structural Steel
5,240	linear feet	Metal Railing

The work shall be completed on or before May 15, 1961.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) Dollars per initial set of contract documents, and Five ($5.00) Dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file at Authority's New York office and the Authority's field office, 2640 Main Street, Niagara Falls, New York, and in the offices of the Engineer, Clarke and Rapuano, 830 Third Avenue, New York 22, New York, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

District of Columbia—Highway Construction—Dept. of Highways & Traffic, September 29, 1959. RECONSTRUCTION OF THE EASTBOUND SECTION OF THE BENNING ROAD VIADUCT, FEDERAL AID PROJECT NO. F-FG-10(2)—Invitation No. C-6020-H, consisting of approx. the following quantities: 18,064 cu. yds. Excavation; 14,000 cu. yds. Backfill and fill; 3,170 sq. yds. 8" Soils base; 2,420 sq. yds. 8" Reinf. Concrete Base; 5,035 sq. yds. 2½" Sheet Asphalt Pavement; 152 Tons Hot Asphalt Concrete; 2,286 lin. ft. Aluminum Railing; 5,037 cu. yds. Class BB Concrete; 14,120 cu. ft. Stone Masonry; 701,200 lbs. Reinforcing Steel; 581,000 lbs. Structural Steel; 5,350 lin. ft. Drilled Shaft Piles; 1,030 lin. ft. 18" and 12" R. C. Pipe and 830 lin. ft. Various sizes steel and C. I. Watermain. (Addendum No. 1 will accompany specifications). Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Room 404, 499 Pennsylvania Avenue, N. W., upon deposit of a certified check for $30.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 2:00 PM, EST, October 27, 1959, in Room 424, 499 Penn. Ave., N.W.

District of Columbia—Highway Construction—Dept. of Highways & Traffic, September 25, 1959. CONSTRUCTING THE SUPERSTRUCTURE FOR NEW WEST HIGHWAY BRIDGE OVER POTOMAC RIVER, VICINITY 14TH STREET, STRUCTURE No. 1133, Federal Aid Project (Interstate) No. I-95-1(24)0, Contract 2-C (INVITATION NO. C-6033-H), consisting of (Concrete Box Girder Spans Alternate) consist. of approx. following quantities: 9,610 cu. yds. Class AA Concrete; 1,930 cu. yds. Lightweight concrete; 2,516,550 lbs. Reinforcing Steel; 303,100 lbs. Structural Metalwork; and 143,700 lin. ft. Prestressing Strands. Contract 2-S (Steel Girder Spans Alternate) consist. of approx. following quantities 7,463,100 lbs. Superstructure metalwork; 4,575 cu. yds. Class BB Concrete; 720,000 lbs. Reinforcing Steel. (Addendas No. 1 and 2 will accompany specifications. Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Section, Procurement Office, D. C., Room 404, 499 Pennsylvania Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 2:00 PM, EST, October 30, 1959, in Room 424, 499 Penn. Ave., N.W.

District of Columbia—Highway Construction—Dept. of Highways & Traffic, September 25, 1959. CONSTRUCTING THE SUBSTRUCTURE FOR NEW WEST HIGHWAY BRIDGE OVER POTOMAC RIVER, VICINITY 14TH STREET, STRUCTURE NO. 1133, FEDERAL AID INTERSTATE PROJECT NO. I-95-1(23)0—(INVITATION NO. C-6032-H), Contract 1-C (Concrete Box Girder Spans Superstructure Alternate), will consist of approx. the following quantities: 14,160 cu. yds. Structure Excavation; 67,920 lin. ft. Steel H-Beam Piles; 15,635 cu. yds. Concrete; 338,650 lbs. Reinforcing Steel; and 62,510 cu. ft. Granite Masonry. Contract 1-S (Steel Girder Spans Alternate) will consist of approx. the following quantities: 14,650 cu. yds. Structure Excavation; 62,260 lin. ft. Steel H-Beam Piles; 16,225 cu. yds. Concrete; 386,750 lbs. Reinforcing Steel and 57,415 cu. ft. Granite Masonry. (Addendas No. 1 and 2 will accompany specifications). Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Section, Procurement Office, D. C., Room 404, 499 Pennsylvania Ave., N. W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 2:00 PM, EST, October 30, 1959, in Room 424, 499 Penn. Ave., N.W.

Bids: To be announced

Construction of Hydroelectric Project Rio Macho No. 1

NOTICE TO MANUFACTURERS OF EQUIPMENT AND MATERIALS AND TO CONSTRUCTION COMPANIES OF IBRD MEMBER COUNTRIES AND SWITZERLAND

The Instituto Costarricense de Electricidad has started the construction of the 30,000 KW hydroelectric project Rio Macho No. 1. The proposed works will also comprise 80 Kms (50 miles) of 138KV transmission lines, and three substations, one 37,500 KVA, 13.8/138KV; one 30,000 KVA, 138/34.5KV, and one 21,750 KVA, 138/34.5, 13.8 KV.

Payment in foreign currency for equipment and materials will be made with funds from a loan which is being negotiated with I.B.R.D. The purchase will be made through international public bidding, in accordance with the terms and conditions that will be published in the official newspaper of Costa Rica "La Gaceta". The bids will be announced in the course of the next two years, starting next October with the bid for the main generation and substation equipment, and for construction and tunneling equipment.

A considerable part of the construction work will be contracted, and the respective bids will be also published in "La Gaceta" in the course of the next two years.

For further information, please write to the Institute's main offices in San José, Costa Rica, C.A., P. O. Box XXXII, or to your respective Embassy in Costa Rica.

Bids: October 23, 1959

Expansion of Sewage Treatment Works and Pumping Stations

Sealed bids for Expansion of Sewage Treatment Works and Pumping Stations, will be received by Commissioners of Rehoboth, City of Rehoboth Beach, Del., at the City Hall until 2:00 P.M., E.D.S.T., on October 23, 1959. Estimated cost is $350,000.

Plans and Specifications may be obtained from Albright & Friel Inc., 3 Penn Center, Phila. 2, Pa. upon deposit of $50.00 per set. Refund of deposit in full will be made to bidders for return of one set within five days after bid opening. Refund for all other sets returned in good condition will be 50% of deposit.

W. A. McWilliams,
City Manager

(Additional Proposal Advertising on page 98)

Bids: October 18, 1959

Karradah Highway Bridge Baghdad

Contract No. B/20 (1959)

Tenders from established civil engineering contractors for the construction of a highway bridge (of suspension type) approximately 380 Meters long, together with all approaches including grade separation over the River Tigris at Baghdad, Iraq, are extended to October 18, 1959.

Tenders must be submitted in English to the Ministry of Communications, Directorate of Roads and Bridges, Bridge Division, Baghdad.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5245) will be received at Mercedes, Texas, until 10 a.m., Central Standard Time, November 5, 1959, for furnishing labor and materials for clearing, earthwork, concrete lining, and structures for H Lateral rehabilitation, Station 1+10 to Station 276+96, Lower Rio Grande Rehabilitation Project, Texas. Location west of Mercedes, Texas. Principal items are 132,000 cu. yds. constructing embankments; 97,000 cu. yds. compacting embankments, 4,550 cu. yds. concrete in lateral lining; 335 cu. yds. concrete in structures; various, furnishing and installing 2 motor-driven pumping units and other equipment and materials; and other work. Completion time 375 days. For particulars, address Bureau of Reclamation, P. O. Box 357, Weslaco, Texas; P. O. Box 1609, Amarillo, Texas, or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5240) will be received at Boulder City, Nevada, until 10 a.m., Pacific Standard Time, November 17, 1959, for furnishing labor and materials for equipment installation and transformer circuit reconstruction for Unit N-8, Hoover Powerplant and Switchyards, Boulder Canyon Project, Arizona-California-Nevada. Location near Boulder City, Nevada. Principal items are 2,200 cu. yds. second stage concrete in powerplant structure; lump sum, installing and testing one 115,000 horsepower turbine and pressure regulator; 175,000 pounds, furnishing and erecting new steel structures; 10,000 lin. ft., furnishing and installing 556,500 circular mil ACRS trasmission circuits; and other work. Completion time 650 days. For particulars, address Bureau of Reclamation, P. O. Box 427, Boulder City, Nevada; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Department of Commerce, Bureau of Public Roads, September 28, 1959. SEALED BIDS will be received at the office of E. J. Woodrow, Division Engineer, Bureau of Public Roads, 920 S. Jefferson Street, Roanoke, Virginia, until 11:00 a.m., E.S.T., OCTOBER 30, 1959, for Project 2S1, Blue Ridge Parkway, Buncombe County, North Carolina. Grading, Tunnel, Aggregate Base Course, and other work from French Broad River 5.188 miles to Chestnut Cove Gap. The approximate quantities of the more important items are: 550,000 cu. yd. Unclassified Excavation for Roadwork, 18,800 cu. yd. Unclassified Excavation for Tunnel, 33,000 tons Crushed Aggregate Base and 200 lin. ft. Concrete Tunnel Lining. Minimum wage rates have been fixed as required by law. Plans, specifications and bid forms are available upon request at the address given above or Bureau of Public Roads, 1440 Columbia Pike, Arlington 4, Virginia. F. W. Cron, Regional Director.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

ADDRESS BOX NO. REPLIES TO: Box. No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Engineer, versed in design and practical application of form work for reinforced concrete buildings, principally open centering for pan construction. Location southeast. Advise education, experience, references, availability and salary expected. P-2609, Engineering News-Record.

Erection Manager—Excellent opportunity— Middle-Atlantic structural steel fabricator. Send resume, references and salary requirements to P-2631, Engineering News-Record.

Highway Construction Superintendent, capable of handling road & bridge work, range of $3 to 6 million dollars, area New England & Eastern New York State. Send resume, qualifications, & salary requirements to P-2673, Engineering News-Record.

Town Engineer with experience in sewerage and sewage treatment, water distribution and municipal engineering: Salary open. Forward resume to Town of Vestal, New York.

Estimator wanted for heavy construction. Must be familiar with take-off, pricing, purchasing and subcontracts for highways, dams, airports and similar work. Location in New York City but involves travel throughout eastern part of the United States. Reply, covering experience, personal data and salary requirement, to P-2711, Engineering News-Record.

Wanted: Construction Superintendent: Immediate opening Carribean Area. Must be capable of assuming full field responsibility for construction of multi-story modern hospital. C. E. preferred, but past record & experience will be considered as of prime importance in making selection. Application for consideration must contain, full and complete experience, history, salary requirements, age, references, etc. Inexperienced Engineers, Craft Foreman, Timekeepers, etc. will not be given consideration. P-2719, Engineering News-Record.

Project Manager or Assistant, three to five years building contractor field experience desirable. Permanent position in one location at home office. Well established Rhode Island contractor. P-2685, Engineering News-Record.

Soil And Materials Engineer, graduate civil with MS degree and minimum 5 years experience all phases soil engineering and materials testing to head laboratory for 3 years port job in South America. Salary $10,000-$12,000, plus $200 per month living expenses and one transportation-paid state side vacation. State education, experience and references. Reply to P-2738, Engineering News-Record.

The Village of Mundelein, Illinois is accepting applications for the position of Village Engineer. Mundelein is an established expanding Village of 10,000 population. This is an excellent opportunity for a man with technical and administrative ability. For an application and particulars, write John J. Noel, Mayor, Village Hall, Mundelein, Ill.

Civil-Sanitary Engineer with at least 5 years' experience in design of sewage treatment plants, intercepting sewers, etc., on projects in the range of $500,000. Send brief resume of qualifications to Gardner & Sterling, Consulting Engineers, P.O. Box 74, Salisbury, Maryland.

Sales Representatives: Topographic mapping surveying and sales experience desired—American Air Surveys, 907 Penn Ave., Pittsburgh 22, Pa.

Traffic Engineers with a P.E. license granted by a state or territory of the United States and two years of professional experience in Traffic Engineering are being offered an opportunity to cooperate in a nationwide New York State civil service written examination on November 21 for the competitive position of Senior Civil Engineer (Traffic) in the State Department of Taxation and Finance in Albany, N.Y. Salary from $7818 to $9408 in five annual increases. For detailed announcements and applications write to Box 11, Recruitment Unit, New York State Department of Civil Service, The State Campus, Albany 1, N.Y.

Civil Engineer—must be a graduate with about five years outside experience by large Chicago heavy construction contractor, as Job Engineer. Permanent position and excellent opportunity, as several of our executives have started with us in similar jobs. Please send resume to P-2793, Engineering News-Record.

(Continued on the following page)

EMPLOYMENT — NATIONAL COVERAGE — OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch in measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

OCTOBER 22ND
ISSUE
CLOSES
OCTOBER 12TH

UNDISPLAYED RATE:

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Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

WANTED—FOR LARGE OFFSHORE CONSTRUCTION PROJECT GREENLAND

Personnel Manager

Live in camp, no families, eight-month contract. Handle personnel and labor relations operation for camp of 1900 employees.
Minimum five years' experience. Age over 25 years.
Future potential for right man.

Security Director

Live in camp, no families, eight-month contract. Handle complete security operation for camp of 1900 employees.

Minimum five years' experience. Age over 25 years.
Future potential for right man.

P-2761 Engineering News-Record
Class Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEER

Civil Engineer for planning and design of hydroelectric projects. Minimum five years of experience in hydro work required. Send complete resume of experience and qualifications to Personnel Department.

HARZA ENGINEERING COMPANY
400 W. Madison St., Chicago 6, Illinois

CIVIL ENGINEERS

For navigation & flood control

DESIGN—Structural, soils mechanics, earthwork, hydraulic, estimates and specifications

$5430-$7510 year

PLUS—Excellent retirement benefits, vacation and sick leave, low cost insurance, etc.

PERMANENT POSITIONS in St. Louis—Appointments made under competitive Federal Civil Service procedures.

Send resume to:

U. S. Army Engineer District,
420 Locust St., St. Louis, Mo.

Construction Superintendent

Under 45—experienced in foundations, pile driving, bridges, concrete, including form work and industrial construction, no buildings. Permanent position, the Middlewest, with large heavy contractor. Most unusual opportunity for suitable man. Please state age, education, experience outline and salary wanted.

P-2759, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

HELP WANTED—ESTIMATOR

General Building Contractor's office. Excellent opportunity for experienced Civil Engineer in the Commercial, Industrial and Institutional field.

Send resume to

NASON & CULLEN, INC.
6522 Vine Street Phila. 39, Pa.

RECENT GRADUATES

in civil or architectural engineering, without appreciable experience, to train for any of the following permanent positions:

- FIELD SALES—customer contact in highway, drainage and construction markets.
- SALES PROMOTION—create marketing programs. Writing aptitude interest mandatory.
- STRUCTURAL DESIGN—both basic design and modification of standard designs of factory-engineered steel buildings.
- SALES SERVICE—working with customers and field sales force on applications.

All positions but field sales are in Middletown headquarters. All carry salary, bonus and full expenses where travel involved. Send complete resume including salary requirements to:

General Office Employment

ARMCO DRAINAGE & METAL PRODUCTS, INC.
Middletown, Ohio

ENGINEERS

STRUCTURAL ARCHITECTURAL

Leading midwestern manufacturing firm with facilities in U. S., Canada and abroad has openings in its engineering and architectural departments. Work includes design and supervision of construction of large industrial, commercial and office buildings. Preferred age: 25-40. Please furnish resume of experience and education, salary requirements, and availability.

P-2542, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

BUYER

Opportunity for recent mechanical or chemical engineering graduate to learn purchasing function at large industrial plant. Send complete details of qualifications and salary requirement to Mr. Hudson Nix.

Celanese FIBERS COMPANY

A division of Celanese Corporation of America
P.O. BOX #444
CUMBERLAND, MARYLAND

• POSITIONS VACANT
(Continued from preceding page)

Design Engineer for R&D section of midwest manufacturer. BSME with at least 4 years experience in design of industrial machinery, preferably including hydraulic equipment. Salary open. Send complete resume. P-2754, Engineering News-Record.

Construction Estimator Wanted—We Have wonderful opportunity for you if you are capable of taking lead in take off, pricing, securing subcontract proposals and closing out bids. Must be hard working, intelligent and ambitious. Good salary plus profit sharing. Work area Memphis, Tennessee. Commercial and industrial building construction. Reply P-2780, Engineering News-Record.

Civil Engineers with experience in specifications or pressure pipe line hydraulics and water supply background. Degree in civil engineering and professional engineer license required. Salary $8105. Division of Water Policy and Supply of the State of New Jersey, 219 W. State Street, Trenton, New Jersey.

Engineer, familiar with bituminous surface treating and penetration. Capable of estimating and sales. P-2791, Engineering News-Record.

Engineer, civil, first class only, exp. in field layout work; also skilled in calculations, computations, quantity take-offs, drafting, on large construction projects. P.O. Box 402, Barre, Vt.

• POSITIONS WANTED

Superintendent, Water & Sewer Line Constr, 20 Years Experience, All types & Dept. PW-2625, Engineering News-Record.

Diver—Commercial Pilot. Currently Active both occupations. Commercial diver seven years, pipelines, dams, construction and salvage work. Own all equipment. Excellent references. Also presently eporating air charter service. Desire position in one or combining both abilities. Absolutely sober and reliable. PW-2629, Engineering News-Record.

Project Engineer, Civil-Sanitary, 20 years experience; take full charge all phases; reports, design, construction; sewerage, water supply, etc.; U. S. or foreign; PW-2639, Engineering News-Record.

Construction Manager; Wide experience in general contracting field as general supt., job supt. Thoroughly familiar with office and field methods and procedure. Available soon. PW-2708, Engineering News-Record.

Construction Superintendent: Top level only. Available, immediately. PW-2715, Engineering News-Record.

LEGAL NOTICE

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION

Of Engineering News-Record published weekly at Albany, New York for October 1, 1959.

1. The names and addresses of the publisher, editor, managing editor, and business manager are: Published by McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 36, N. Y.; Editor, Waldo G. Bowman, 330 West 42nd Street, New York 36, N. Y.; Managing Editor, Edward H. DeHart, 330 West 42nd Street, New York 36, N. Y.; Business manager, Hugh Carlson, 330 West 42nd Street, New York 36, N. Y.

2. The owner is McGraw Hill Publishing Company, Inc., 330 West 42nd St., New York 36, N. Y. Stockholders holding 1% or more of stock are: Donald C. McGraw & Willard T. Chevalier, Trustees under Indenture of Trust m/b James H. McGraw, dated 1/14/21 as modified; Donald C. McGraw & Harold W. McGraw, Trustees under an Indenture of Trust m/b James H. McGraw, dated 7/1/37 as amended; Donald C. McGraw, individually; (all of 330 West 42nd St., New York 36, N. Y.), Mildred W. McGraw, Madison, New Jersey; Grace W. Mehren, 536 Arenas St., LaJolla, Calif.; Affiliated Fund, Inc., 63 Wall St., New York, N. Y.; Genoy & Co., P. O. Box 491, Church St. Station, New York, N. Y.; Touchstone & Co., c/o Wellington Fund, Inc., Claymont, Delaware.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 81,500.

McGRAW-HILL PUBLISHING COMPANY, INC.
By JOHN J. COOKE, Secretary.

Sworn to and subscribed before me this 10th day of September, 1959.

[SEAL] JANET A. HARTWICK
(My Commission expires March 30, 1961)

AVAILABLE
STEEL SALES MANAGER

National experience in heavy fabrications, bridges, dams, tunnels, pressure vessels, large weldments, etc. Seeking new opportunity to expand company sales to a five to fifteen million dollar volume. Salary requirement high. Prefer stock option or commission arrangement.

PW-2760, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

• POSITIONS WANTED

Mining Engineer—30—married — registered in W. Va. Desires position as Highway/or Bridge Engineer. Will relocate. Resume on request. PW-2661, Engineering News-Record.

Civil Engineer, 34, married, capable, with 13 years of experience with contractor and engineer on power plant construction. Desire position with contractor or owner. Location open. Available Oct. 15. PW-2740, Engineering News-Record.

Construction Supt. Age 38 well experienced on industrial, commercial and school work, available Oct. 1st. Desire California area. Reply to PW-2726, Engineering News-Record.

Grad. BCE, age 29, single. Municipal, Bldg. Construction Engr.—3 years excellent Spanish, Foreign and or related position desired. Resume on request. Marcelino Loriz, Jr., 49 Madison St., New York 38, N. Y.

Project Manager—Overseas—Highway Construction—Available for interview New York after October 22nd. Will supply entire crew. Superintendent, Office Mgr. Ass't Supt, Master Mechanic, Mechanics, Bridge Foreman, Project Engineer, Grade Foreman, Pipe Foreman and Operators. Entire crew young and ambitious with minimum 7 years highway and heavy construction experience. PW-2339, Engineering News-Record.

Executive, Coordinator, Organizer. Buildings, Heavy, Prestressed. Qualified to run a large project, Division or Business. Wish to contact large volume contractors. Salary $15-20,000. C. O. Sutherland, 47 Rich Ave., Mount Vernon, N. Y. Telephone MO 4-7927.

Construction Superintendent. Roads and Airports. Thirty years experience. Worked in South America, Iceland and Africa. Desire work overseas or in Southeast. Best references. PW-2775, Engineering News-Record.

• POSITIONS WANTED

Hydraulic engineer; over 20 years experience (5 foreign) on all types river developments including, irrigation, hydroelectric, storage, pumping, supply, control, channels, drainage. Writes, reads, converses fluently in Spanish. PW-2610, Engineering News-Record.

Construction Supt. General Construction. PW-8896, Engineering News-Record.

Position Wanted: Junior Estimator—Industrial, Commercial Pre Cast Concrete Design, considerable Drafting. Will Relocate. PW-2777, Engineering News-Record.

Construction Superintendent — Experienced Public Works—Cost conscious—Take full charge. PW-2799, Engineering News-Record.

Construction Engineer with nationwide firm desires change. Age 30. Supervisory experience on industrial and commercial buildings. Some earthwork. No degree but lots of experience. Will relocate stateside or foreign. PW-2800, Engineering News-Record.

Structural Eng. B.S.C.E. 35 reg. 10 yrs. broad experience. Desires full responsibility for structural design with architect-engineering firm in Mid West. PW-2796, Engineering News-Record.

Qualified Piping Supt. Gen Industrial Construction. Local or Foreign. PW-2750, Engineering News-Record.

Construction Engineer: B.S. in Civil Engineering. Age 33, married. 8 years experience Estimating Engineering & Supervising Industrial Construction. Desire position with Construction or Engineering Co. Location West, will consider other areas. PW-2749, Engineering News-Record.

Constr'n. Engr. Supt. Recently on I.B.M. Bldg. Cinti., O. Salary open. G Urban, 18308 Dalewood Ave., Maple Hghts. 37, O.

Controller - Construction - Industrial management. Experienced supervisor organize, reorganize systems procedures. W. W. Delph Jr., 212 W. 91 St., N.Y.C. Sc 4-1800.

College Graduate, 32, several years experience in construction, 2 years as manufacturers' rep. construction equipment, wants challenging job in construction or related field. Willing to relocate. PW-2801, Engineering News-Record.

SEARCHLIGHT SECTION CLASSIFIED ADVERTISING

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The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

• FOR SALE

Surveying Practice, established 40 years in Bergen, Hudson, Essex & Union Counties, N.J. Includes transit, field equipment, files, records, and successorship rights. Write or call evenings. L. V. Hoff, CApitol 6-2639, 162 Washington Ave., West Caldwell, N. J.

• WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.

[illegible] without obligation

WILSON *Engineering Corp.*
College House Offices HARVARD SQ., CAMBRIDGE, MASS.

ATTENTION
CONSULTING ENGINEERS FIRMS
which may have works in TAIWAN area

An experienced Chinese structural engineer, familiar with soil mechanics related to foundation engineering, is willing to help Foreign Consulting Engineers who have work in Taiwan or nearby countries. This engineer has worked in States before and is quite familiar with American practice. Able to produce "American standard" drawings fitting to local technical practice. Can make decisions. Wide public relationship with local diversified Chinese Agencies, such as survey teams, soil exploration parties, test laboratories, etc. Please write

CWW-2762, Engineering News-Record
68 Post St., San Francisco 4, Calif.

FOR RENT

1—Manitowoc Barge Sectional 70 ft. x 40 ft.
1—Manitowoc 3900 Crane
1—Navy Pontoon Barge
Top Condition *Located in New England*
W. J. HALLORAN CO.
303 Chapman Street Providence, R. I.

USED BLAW-KNOX AUTOMATIC INTERLOCKED ROAD BATCH PLANT

B/K Lo Cement Bin BCPC600
B/K Aggregate Bin P-3100
B/K Lo Cement Bin BCPC600
B/K Hi Cement Bin BCPC600
B/K Triple Electric Batcher
B/K Dual Electric Batcher
2—B/K Elevators, 75 ton, w/screw conveyors

HENNESSEY-FORRESTAL MACHINERY CO.
2323 South Hanley Road
St. Louis 17, Mo.
Phone: MIssion 7-4050

FOR SALE

2—Manitowoc Model 3500 Liftcrane
1—Manitowoc Model 3900 Liftcrane
1—Lima Model 802 Dragline

MANITOWOC-FORSYTHE CORPORATION
37-11 Vernon Blvd.—*EXeter* 2-6125
Long Island City 1, New York

1351 CFM AIR COMPRESSOR

Worthington Type YC, vertical 80/125 PSIG with 5 step control, 200 HP 80% PF flange mounted 2300V GE TS sync. motor, starter, aftercooler and air receiver. New 1949, used only 3000 hours. Located near New Orleans. Excellent condition.

R. C. STANHOPE, INC.
60 East 42nd St. - New York 17, N. Y.

SEARCHLIGHT Equipment Locating Service

No Charge or Obligation

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment *not currently advertised*. (This service is for USER-BUYERS only).

How to use: Check the dealer ads to see if what you want is not *currently* advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

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Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, N. Y. 36, N. Y.

Please help us locate the following equipment components.

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NAME . . . .
TITLE . . . .
COMPANY . . . .
STREET . . . .
CITY 10/8/59

FOR SALE

1—Barber-Greene Model 879 asphalt finisher with LeRoi gasoline engine. Serial No. 879-8-7. Excellent condition. Selling Price $7,500.00

1—Barber-Greene Model 1879A asphalt finisher, with LeRoi gasoline engine, s/n: 52-258. Completely rebuilt. Excellent condition. Selling price . $10,500.00

1—Barber-Greene Model 804 Mix-All Asphalt Unit, s/n: 804-856. Complete and in excellent condition; used on one short job. Powered with Wisconsin VE4 engine. Selling Price $5,000.00

1—Model 44-C Barber-Greene Ditcher, 18" x 7' boom, with follow-up scraper, powered with six cylinder Buda gasoline engine, serial No. 44-48-10. Good operating condition. Selling Price $2,500.00

1—Littleford 1200 gallon asphalt distributor, with #99—10 ft. spray bar, with two extra 4 ft. spray bars, powered with eight cylinder V-8 Ford engine, (our equipment #1977). No truck, but ready for mounting on truck . $1,950.00

1—3½ cu. yd. Model LD8AD Scoopmobile, front end loader, mounted on four pneumatic tired wheels, powered with Cummins Diesel engine, serial: 228. Excellent condition; practically new. Selling Price $19,000.00

These prices are all f.o.b. our yards, St. Louis, Missouri.

Allied Construction Equipment Co.
4015 Forest Park Avenue - St. Louis 8, Mo.
Phones: FRanklin 1-1818 & 1-7132

Need A "Lift"?

CRANES, INC.

RENTALS

Manitowoc 3900's
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Latest Models
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TRUCK CRANES

Link Belt and Bay City, Cap. to 40 Tons
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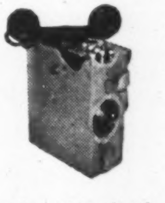
Maspeth 78, N. Y. ST 4-1776



U. S. Army Telephones EE-8 fully reconditioned. Suitable for intercommunication between 2 or more points. $35.00 for 2 telephones, including 100 ft. of wire and batteries. Additional wire 1¢ per ft. or $25.00 per mile. Write for free list on telephones. All shipments F.O.B. Simpson, Pa.

TELEPHONE ENGINEERING CO.
Dept. ENR-199
Simpson, Pa.

HEAVY EXCAVATION EQUIPMENT

DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

15-W Bucyrus Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus Erie Elec. Drag, 160', 11½ yd.
9-W Bucyrus Erie Diesel Drag, 200', 9 yd.
7-W Bucyrus Erie Elec. Drag, 140', 7 yd.
7-W Bucyrus Erie Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175', 13 yd.
7400 Marion Elec. Drag, 175', 12 yd.
625 Page Diesel Drag, 160', 9 yd.
360-M Marion Elec. Drag, 175', 8 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus Erie Diesel Drag, 125', 6 yd.
5-W Bucyrus Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B Bucyrus Erie Elec. Drag, 115', 5 yd.
3900, 3500 & 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1055 P&H Drag, 80', 3½ yd.
1201 Lima Dragline, 85', 3 yd.
54-B Bucyrus Erie Drag, 80', 2½ yd.
5560 Marion 26 yard Elec. Shovel
550-B Bucyrus Erie 25 yard Elec. Shovel
750-B Bucyrus Erie 20 yd. Elec. Shovel
1050-B Bucyrus Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
151-M Marion 7 yd. Elec. Shovel
170-B Bucyrus Erie 6½ yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
111-M Marion 4 yd. Standard Shovel
54-B Bucyrus Erie 2½ yd. Standard Shovel
Large selection of smaller Shovels and Draglines available
Model T-650 Reich Truck Mounted Rotary and Down-The-Hole Drill
Euclid Trucks, rear & bottom dump
Truck Cranes, Dozers, Scrapers, Attachments

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

FOR SALE OR RENT

Erie Sprayer Trailer portable aggregate and cement batching plant, fully automatic; 3-compartment aggregate bins, 28 c.y. or 42-ton capacity; 3 c.y. batcher 24" belt conveyor, single-phase motors throughout; hot or cold water meter; 8:25 x 20 tires; silo capacity 175 bbls.; 9" vertical screw elevator, capacity 267 bbls. per hr. Plant capacity 60 c.y. per hr. 2 Recorders with interlock. Meets Corps of Engineer and Penna. State Highway specs. 5600 c.y. batched by plant.

Contact

H. I. LEWIS CONSTRUCTION COMPANY, INC.
43 E. Main Street
Middletown, Penna.
Telephone: WHitney 4-4654

FOR SALE OR RENT

2½ YD. LINK-BELT CRANE-DRAGLINE
K-595, 140' BOOM & JIB
CAT. D17000 ENGINE

50 TON AMER. DIESEL LOCOMOTIVE CRANE. 1946
30 TON BROWNING DIESEL LOCOMOTIVE CRANE
44 TON GEN. ELEC. DIESEL ELEC. LOCO.
25 TON WHITCOMB DIESEL ELEC. LOCO.
60 TON MANITOWOC 3900 CRANE
AMERICAN #140 3D DIESEL HOIST
90 HP LIDGERWOOD 2D DIESEL HOIST
Also Other Constr. & Ry. Equip.

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

CRANES FOR RENT

CRAWLERS Capacities to 60 tons, Booms to 180 ft.
TRUCK CRANES Capacities to 35 tons, Booms to 130 ft.

P & H, Lima and Manitowoc.
Top-Condition erection cranes

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OFFICIAL PROPOSALS

(Continued from page 92)

Bids: October 27, 1959

Contracts LGA-310.005, LGA-310.012, LGA-310.013 and NYA-920.010

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Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract LGA-310.005—LaGuardia Airport—Relocated Runway 13-31—Fill, Sand Drains and Surcharge—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, October 27, 1959.

Contract LGA-310.012—LaGuardia Airport—Alterations to Existing Runway 13-31—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, October 27, 1959.

Contract LGA-310.013—LaGuardia Airport—Hangar No. 2—Apron Pavement—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, October 27, 1959.

Contract NYA-920-010—New York International Airport Runway 4R-22L—Access Road for Approach Lights—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, October 27, 1959.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue,

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THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, October 8, 1959

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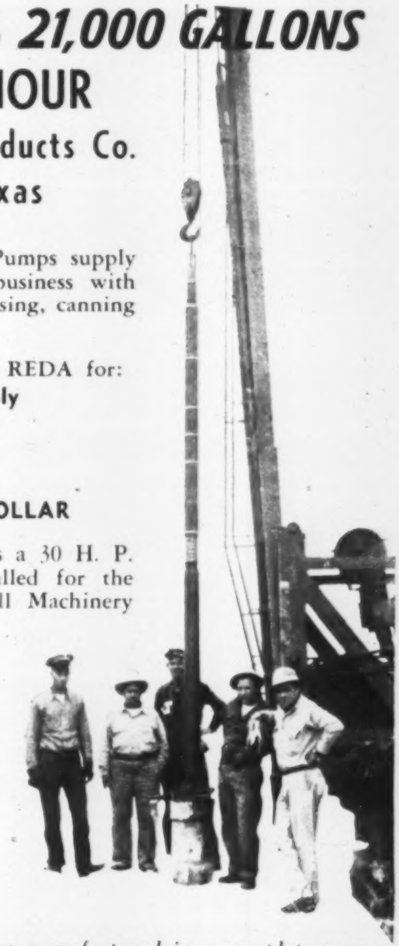

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Editorials

Buckle Down

DURING THE THIRD QUARTER construction took a beating from Congress and began to feel the effects of the steel strike. That means the next three months will have to be a busy period indeed to make up what was lost.

Congress did its damage by delaying the road financing measure. Highway contracts, which were 2% ahead of last year at the end of June, are now 17% behind. The steel strike's effect will show up more in the figures that relate to construction put in place than in new contract statistics: More going jobs have been delayed by lack of steel than was realized.

But pessimism won't help the situation. What will help is a resolve to gain back the lost ground as rapidly as possible. Actually, total construction during the first nine months of the year has held up remarkably well. It is still 5% ahead of last year, thanks to the vigor of private contract letting, most notably in industrial building. By recording a nine-month total 66% ahead of last year, this category of activity has been instrumental in putting the figure for all private construction 30% above a year ago. In contrast, all public construction is down 11%.

Now that federal-aid allocations to the states for highways are about to be resumed, contract awards in this category should be pushed with determination. And with the President taking a firm stand on ending the steel strike, the mills should soon be turning again—if not as a result of a settlement, then by Taft-Hartley Act compulsion.

There will be problems: Bidding on road contracts will be close because many contractors will be after a smaller number of jobs; and costs on construction jobs that have suffered steel troubles will have to be carefully controlled to guard the profit margin that remains.

The time has arrived for the construction industry to buckle down and retrieve the opportunities it lost through no fault of its own.

Ten Years Too Late?

IT IS A BIT IRONIC that the governors of Delaware, New Jersey, New York and Pennsylvania have named a six-man committee to draft a proposed interstate federal compact concerned with management and development of the Delaware River Basin's waters (see p. 22). It is ironic because the existing pollution control compact agency called Incodel (Interstate Commission on the Delaware River Basin) had consultants prepare a rather detailed plan for waters of the basin back in 1950, and it failed to get the support of these same four states.

The Incodel Plan, prepared by Malcolm Pirnie Engineers of New York, and Albright & Friel, Inc. of Philadelphia, was a grand plan for the river's development. It would have satisfied drought-stricken New York City's water needs; it would have solved a developing water supply problem for northern New Jersey; it would have offered Philadelphia an upstream source of purer raw water; and it would have given communities in Delaware low flow regulation as a bar to salt water intrusion.

But Pennsylvania, principally, opposed the Incodel Plan, and legislation to establish a compact to implement it never got through the four state legislatures.

As a result, New York City was forced to fight before the Supreme Court of the United States for the right to take 360 mgd of water from the Delaware, in addition to the 440 mgd it had been permitted under earlier decree. With that right granted, the city's Board of Water Supply immediately launched into its $140-million stage-three Delaware development, a new dam and a 44-mile tunnel. Northern New Jersey had to fight year after year for state-wide support of a project, now started, to develop some 80 mgd from the Raritan River instead of from the Delaware or a tributary of it.

In the meantime, too, Philadelphia has greatly improved its treatment facilities for taking water from the Delaware and Schuylkill rivers near its doorstep. And the states of Pennsylvania and Delaware are working out a control and development scheme for Brandywine Creek, a Delaware tributary that flows through Wilmington.

The four present governors want their committee to come up with proposed legislation that would "recognize and accept existing determined public rights of all states" in the basin. How much better it might have been if an interstate compact had been established according to the Incodel Plan to help determine such water rights of the states, instead of merely recognizing and accepting them now. Do they need further official recognition and acceptance by a new agency with federal as well as state representation? For what?

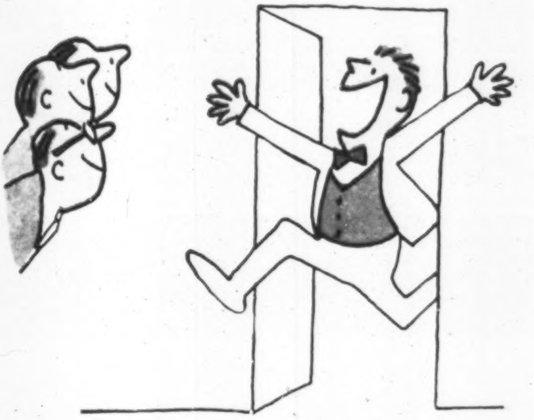
We recall Malcolm Pirnie's comment to ENR at the time of his firm's work on the basin-wide plan. "There is no shortage of water, just a shortage of vision," he said. Now that individual water supply projects to deliver needed water abound in the basin, it is difficult to become excited about a new agency to "administer" waters of the Delaware. It seems about ten years too late.

Now It Is Started

"NOTHING LIKE HURRICANE GRACIE can stop the work," said the Honorable Herbert Hoover to the crowd huddled before him in a driving rain to witness groundbreaking for the United Engineering Center in New York. He termed it "an event of national importance," which indeed it was. Construction assured, the only task remaining is to complete the fund raising, already three-quarters of the way to its goal. But, as Mr. Hoover said, nothing can stop it now.

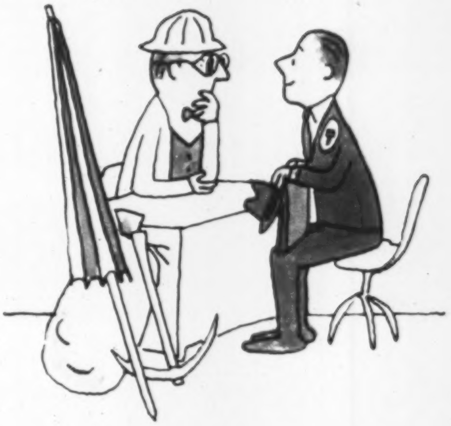
Al protects *his* road with an umbrella

1.



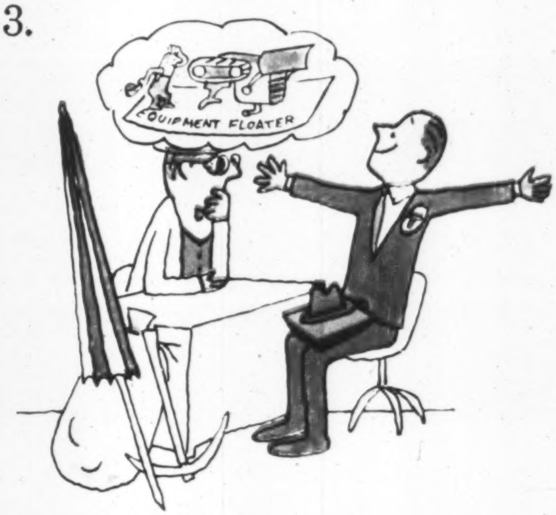
"All mine!" Al Arch exploded as he tumbled through his door,
"That superhighway contract from the city to the shore!"
His men assembled round him and each took him by the hand,
Our hero felt, as you'd expect, just simply, wholly GRAND!

2.



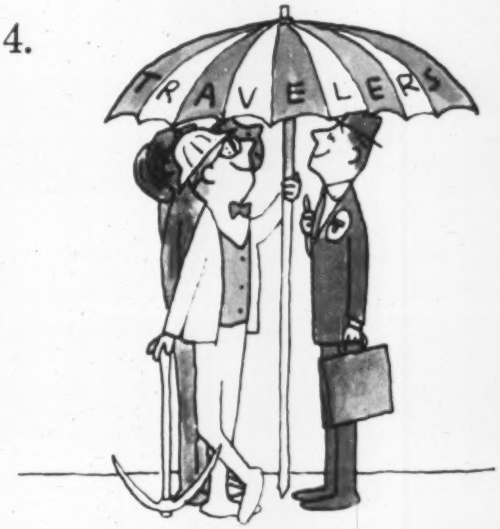
His Travelers man stopped in to find him gazing pensively.
Said Al, "Your bond was super-fast and right as it could be,
But we push off to start at dawn, we need a covering plan!"
"We quickly handle every need," replied his Travelers man.

3.



"You have our Workman's Comp and Public Liability,
So if a man gets hurt, he's *our* responsibility.
And our Equipment Floater is good fortune's best defense:
Collision, upset, fire, theft—not yours, but *our* expense.

4.



"And finally, our Builder's Risk Insurance can't be beat,
Protects like an umbrella till your venture is *complete!*"
If *you've* a highway in the works, be sure to check this plan,
Just make a call, he's on the ball, your able Travelers man.

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Insurance Companies
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All forms of business and personal insurance including Life • Accident • Group • Fire • Marine • Automobile • Casualty • Bonds

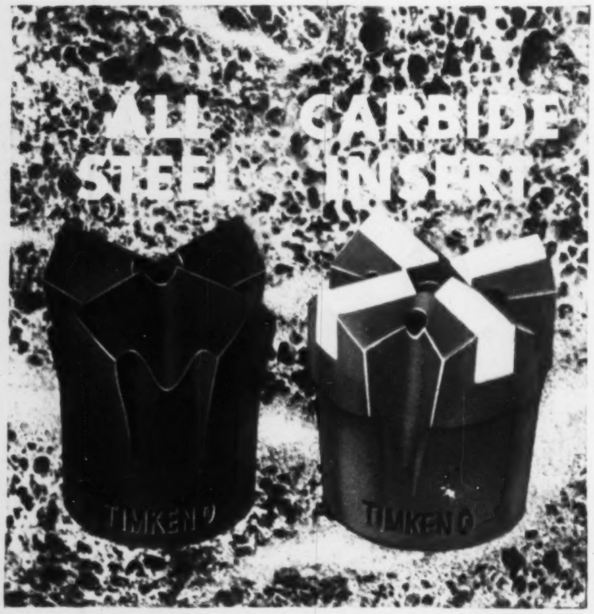
"We drilled over 5,000 ft., averaging 15 redresses per bit, with Timken® carbide insert bits"

Special report from Rogers Construction Company

LOCATION: U. S. HWY. 30, THE DALLES, OREGON

Operating conditions: Lava-Basalt

In converting part of U. S. 30 from a two-lane to a four-lane highway, Rogers Construction Co. of Portland, Ore., had to drill through Lava-Basalt. Holes in this very fryable rock varied from 25 to 60 feet. And for drilling on this very abrasive ground, Timken® carbide insert bits were a "natural". They set records. Some of the original 010 4½" bits have drilled well over 5,000 ft., averaging 15 redresses per bit.



Which Timken Bit should you use?

In hard, abrasive ground, the Timken carbide insert bit gives you greatest economy. But in softer ground, use the low-cost Timken all steel multi-use bit. Both bits are interchangeable in the same thread series; you can switch bits as the ground changes. What's more, dozens of different Timken bits fit the same drill steel. And both types are made from Timken electric furnace fine alloy steel, have special shoulder unions to protect against drilling impact. Let us help you select the right Timken bit for your job. Call or write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steels and Removable Rock Bits.*

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